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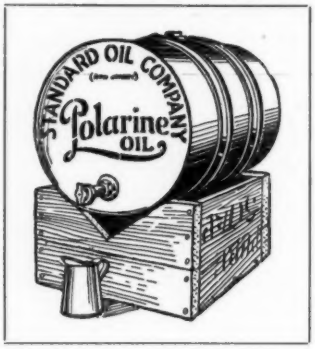

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Original Communications

ON THE CARE OF PATIENTS MANIFESTING HIGH BLOOD PRESSURE.*

By LEWELLYS F. BARKER, M. D., Baltimore, Md.

The high blood pressure patient we have always with us. Not a working day passes in which the general practitioner or the consulting internist fails to be confronted with the problem of the management of one or another patient in some stage of chronic arterial hypertension. Surgeons contemplating operative interference and medical and surgical specialists active in more localized domains dare not neglect consideration of the significance of high blood pressure in their patients and must learn how to value it. The management of patients manifesting high blood pressure is then a topic that interests every one of us. We remain, it is true, in dense ignorance, as yet, concerning many points in connection with the causation and course of high blood pressure about which we would fain have knowledge. Experienced physicians have, however, gradually accumulated data that can be utilized greatly to the benefit of hypertensive patients. To the application of some of the data to therapy my remarks at this time will refer.

Classification of Therapy.

As medicine has gradually passed from the stages of tradition and empiricism to that of modern science, therapeutic effort has become ever more rationally based. Thorough diagnostic study now precedes therapeutic intervention. When a patient applies to us for relief, we endeavor by precise methods (analytical and synthetical) to make a survey of him as a whole in order that we may recognize all discoverable deviations from normal structure and function. We try, also, to ascertain the sequence of events in any pathological processes that we find to exist. In other words, we determine what functions are abnormal and we learn all that we can regarding the underlying processes. We inquire into their possible internal and external causes (etiology), and we consider the effects of the causes and the serial order in which the effects have appeared (pathogenesis). It is our aim to acquire as full a knowledge as is practicable of the physical, psychic and social status of our patient, of the conditions that underlie this status and of their development and causes before we permit ourselves to decide upon the measures best suited to check the progress of disorders, to restore normal functions, or to bring functions nearer to the normal.

When planning therapeutic regimes it is desirable in each instance to have clearly in mind precisely what we are attempting to do. It is, accordingly, helpful to consider therapy under two headings: (1) available remedial measures and (2) effects to be produced by the measures.

When we think of treatment under the first heading, that of the kinds of measures that can be instituted, we select from our lists of remedies (diet, baths, air, light, exercise, rest, recreation, massage, electricity, drugs, vaccines, sera, nursing, dentistry, surgery, etc.) those that we regard as applicable to the case in hand. But before making such selection, we do well to consider the treatment of the patient under the second of the headings mentioned, namely, the effects to be produced, or what we really desire to do. We can, I think, divide what we wish to accomplish into four parts:—

1. Removal of causes or rendering them harmless *(etiological therapy)*.

2. Restoration of the disturbed functions to normal by direct measures *(functional therapy)*.

*Read by invitation at the twenty-third annual session of the Tri-State Medical Association of the Carolinas and Virginia held at Spartanburg, South Carolina, February 16, 1921.

3. Support of the reaction of the organism against the disease process or its cause *(regulatory therapy)*.

4. Relief of single symptoms that harm the patient or disturb him *(symptomatic therapy)*.

Etiological Therapy of Hypertensive States.

Causal therapy is the ideal of every rational therapeutist. Success in treatment is notably greater in those diseases for which we know causes that are removable or that can be rendered harmless. Concerning the real cause, or causes, of chronic arterial hypertension, however, we are, unfortunately, still profoundly ignorant. We are familiar with certain groups of patients in whom high blood pressure occurs and know the symptoms and signs that they present; we are acquainted, too, with the general course of the malady in these different groups and have learned the common terminations of the disease-process. But our ignorance of the etiology and the pathogenesis of chronic arterial hypertension is far more impressive than our knowledge. This want of knowledge seriously handicaps us in our efforts to plan a causal therapy.

Clinicians have, nevertheless, made shrewd observations of patients that have yielded clues to the kinds of constitutional make-up and the varieties of environmental influences that tend to favor the development of chronic arterial hypertension. That hereditary and constitutional factors are of importance in the causation of hypertensive states would seem clear from the fact that high blood pressure is often met with in several members of the same family, all of whom exhibit certain more or less characteristic physical and mental traits. Thus on the physical side such persons often exhibit the so-called apoplectic habitude (stocky build, short neck, plethora, obesity) and on the mental side the marks may be almost as distinctive (worrying tendency, irritability, over-seriousness, inability to play, circumscription of interests, ill-balanced life). Families in which megrim is common and families in which goitre is prevalent seem also particularly prone to the development of hypertensive states. Just what is responsible for the defects in the germ plasm that account for these constitutional inferiorities (vasopathic, neuropathic, endocrinopathic) we do not yet know, but it seems certain that in some families, the members are, wholly aside from environmental conditions, especially predisposed to the hypertensive maladies. One member after another develops high blood pressure and ultimately makes a characteristic exit (apoplexy, angina pectoris, heart failure, pulmonary oedema, uraemia, terminal infection). The members of families thus predisposed seem to start with "bad tubing," with vulnerable vasomotor systems, or with ill-balanced endocrine organs. Sooner or later, even under favorable environmental influences, the evidences of chronic arterial hypertension appear in such persons.

Careful analyses of the histories of hypertensive patients indicate, all the same, that certain environmental influences must be counted also as causes of the maladies of which chronic arterial hypertension is a symptom. For, exposed to these influences, normal persons may develop high blood pressure and persons with family predisposition will manifest high blood pressure earlier in life than they otherwise would. Arteriosclerosis and chronic renal disease are so often met with in association with chronic arterial hypertension that many believe that they must have etiological factors in common with it. Among the influences in the environment now thought to contribute to the origin of such states I may mention: (1) infectious processes (recurring tonsillitis, oral sepsis, sinusitis, influenza, scarlet fever, diphtheria, typhoid fever, etc.); (2) chronic intoxications of exogenous or endogenous origin (lead poisoning, chronic alcoholism, tabagism, excessive use of condiments, overeating, chronic constipation); (3) external influences that favor metabolic disturbances such as diabetes, gout and obesity, and (4) faults in general hygiene that increase the wear and tear of life on either the mental or the physical side (excitement, worry, anxiety, overwork, indolence, injudicious clothing, exposure, sexual excesses).

The several possible etiological factors just mentioned should be considered when we are asked to try to prevent chronic arterial hypertension in the predisposed or to arrest the progress of the process that underlies it after it has appeared. The constitutional make-up of persons already born can not, of course, be altered. It is questionable, too, whether or not our

knowledge of heredity is as yet sufficient to justify any rigid eugenic campaign directed especially toward the prevention of hypertension. When, in the future, genetic factors come to be better understood, hypertension of cacogenic origin may, perhaps, be avoidable. At present our preventive and arrestive efforts are, of necessity, restricted almost entirely to (1) the prevention of the acute infectious diseases, (2) the removal of chronic foci of infection, (3) the prevention of intoxications, and (4) education to hygienic living.

In the early stages of chronic arterial hypertension, a thorough general diagnostic survey of the patient will often reveal foci of infection, recurring intoxications, or glaring defects in personal hygiene that warrant active therapeutic intervention. Focal infection, if discovered in association with incipient hypertension, should be dealt with in the same way as in chronic infectious arthritis or in chronic anaemia. Pyorrhoea alveolaris, periapical granulomata, infected tonsils and adenoids, infected paranasal sinuses, chronic appendicitis, chronic cholecystitis, chronic prostatitis (in men) and chronic pelvic inflammatory disease (in women) should be looked for and, if found, receive appropriate surgical treatment. Discretion should be used, however, in dealing surgically with such focal infections in the advanced stages of hypertensive maladies for there would be, as a rule, but little, if anything, gained by radical surgical treatment after extensive retinal hemorrhages or cerebral apoplexies have occurred, when outspoken cardiac failure has appeared or severe renal decompensation has become manifest. That poisonings by lead, by alcohol, by tobacco, by excess of food or by the products of intestinal stasis, if they exist, should be stopped, goes without saying. In cases of hypertension in which symptoms of diabetes, of gout or of obesity are also present something can be accomplished by an appropriate dietetic regime directed toward the particular vice of metabolism concerned. The hypertensive states that accompany Graves' disease or those met with in association with thyroid adenomata can sometimes be benefited by strumectomy. The best results, however, in prophylaxis and in causal therapy are doubtless obtainable through careful supervision of families by general practitioners, who are in large part responsible for the education to health of the people among whom they practice. Hygienic education is, of course, important for all. It can be especially helpful in families predisposed to high blood pressure, to arteriosclerosis and to Bright's disease. Physicians are convinced that a sensible diet, regular hours of work, rest and recreation, good bathing habits, proper care of the emunctories, avoidance of excesses of all sorts, the cultivation of self control, and the maintenance of a well balanced life with normal satisfaction of all the human desires and instincts will go far toward promoting health and longevity and toward preventing the development, even in the predisposed, of chronic cardio-vascular-renal disease.

And even after a hypertensive process has set in, more can be done for the patient by educative measures than in any other way. Speaking on high blood pressure at the Ohio State Medical Association last year, I said:—"Psychotherapy, in the broad sense of dispelling fear, of inspiring confidence and hope, of educating the patient regarding the nature and course of his malady, of guiding him toward a more hygienic mode of life and of cultivating in him the ability to face the realities with serenity, will be found to be the most beneficently potent and serviceable agent that we possess." I believe that most internists of experience will concur with this opinion.

Among the laity there is much fear of high blood pressure, for the public, too, has learned that, in the long run, patients with high blood pressure die from uraemia, from heart failure, from cerebral apoplexy, or from terminal infection. But it is a mistake to allow patients in the early stages of hypertension to suffer too much from fear. Physicians now know that patients may manifest high blood pressure for many years and even for decades before any serious complications set in. Since the blood pressure is measured now-a-days as a routine clinical test in all patients who apply for diagnostic studies and for examinations for life insurance, it is important that the laity should be instructed regarding the earlier and more benign stages of the hypertensive process underlying it, for he is all too prone to have in mind, when high blood pressure is mentioned, only the malign sequels of the advanced stages.

Much can be done by physicians to dispel fear and to arouse hope in a hypertensive patient by explaining to him his precise situa-

tion after it has been thoroughly investigated. The physician should assure the patient that he will be given definite instructions how to live in the way best suited to cure, to arrest, to delay or to mitigate, according to the stage of the process that is found to exist. Unnecessarily frequent measurements of the blood pressure should be avoided. When a patient has been made to understand that a rise in his blood pressure is often a compensatory process that is beneficial in his circumstances and that the exact height of the blood pressure is far less important than the conditions that underlie it, a good start has been made. There are circumstances in the course of a hypertensive malady that make it important to raise the blood pressure rather than to lower it. Moreover, a patient, who feels that his physician, after carefully studying him, will give him the supervision that he needs and will teach him how to conduct his life so that he will neglect nothing that may be advantageous for the restoration or preservation of his health and working capacity, will usually be found co-operative and will become an obedient and grateful pupil. The physician who applies these several principles of causal therapy in the management of his hypertensive patients will find the practice rewardful.

Functional Therapy In Hypertensive States.

When hypertension is discovered early, it can sometimes be made to disappear entirely so that there is a restitution of normal function, simply by the application of the causal therapy outlined above. And in more advanced cases of hypertension, though the function cannot be restored to normal, the blood pressure can often be maintained at a lower level than before without harm to the patient. Causal therapy is, therefore, often also the best form for bringing the disturbed function back to normal.

Physicians, however, often make use of therapeutic measures intended to lower the blood pressure directly independent of its causes (functional therapy). Drugs, electricity, radium, baths, exercises and blood letting have all been used to lower the blood pressure.

Among the drugs for this purpose, iodine preparations, nitrites, benzyl benzoate and yohimbin have been most used.

Certain patients with chronic arterial hypertension, especially when associated with outspoken arteriosclerosis, assert that they feel better during the continuous administration of sodium iodide and potassium iodide in small doses, 1 grain of each in water after each meal, the dosage being gradually increased until 5 grains of each are taken. Why, we do not know, though there are many theories as to the mode of action of the iodine preparations. Iodine preparations are helpful in syphilitic cases but, in my own experience, syphilis is not more common in hypertensive patients than in patients of the same age with normal blood pressure. The iodides do not lower blood pressure directly but probably exert their influence in some obscure way upon the metabolic processes, possibly through the thyroid. Of late, certain organic preparations of iodine have been introduced, notably, several combinations of iodine with proteins and fats (iodalbin, iodo-casein, iodoleine, lipoiodine and sajodin). Many hypertensive patients, however, receive no benefit from iodine therapy, and a certain number of these patients feel much worse if they take iodine in any form. Hyperthyroid patients, especially, stand iodine preparations badly.

The inorganic nitrites, especially sodium nitrite, were formerly much used to lower blood pressure before the compensatory nature of hypertension was understood. Even now the nitrites are sometimes employed when the blood pressure is very high in the hope of avoiding accidents like cerebral apoplexy. Sodium nitrite, amylnitrite, and certain organic nitrates (nitroglycerin, erythrol tetranitrate) are really helpful in the cases of hypertension associated with angina pectoris. A hypodermic tablet of nitroglycerine (1/100 grain) dissolved under the tongue often gives quick relief. In my own practice, I rarely use the nitrites and nitrates except in the latter condition. The Lauder Brunton method of drinking a pint of water containing potassium bicarbonate, potassium nitrate and sodium nitrite in the early morning for a period several times a year has had, however, considerable vogue in England.

A word of caution against lowering the blood pressure artificially with nitrites, except with the above definite purposes in view, would seem to be in order. For if the blood pressure be lowered too much by nitrites or by

methods other than those of causal therapy, harm to the patient rather than good may result. Once the arteriosclerosis that accompanies chronic arterial hypertension has reached a high grade, the blood pressure must be maintained at a certain level above normal in order that the patient's tissues may receive an adequate supply of blood. Cerebral, cardiac or renal decompensation can, in my opinion, be hastened by the injudicious use of nitrites.

Benzyl benzoate whose therapeutic properties have been studied recently by Macht has the power of lowering the tone of unstriped muscle. Used principally to combat colic (uterine, intestinal, renal, biliary), it has been recommended also for the treatment of angiospasm. It has not been used sufficiently as yet in arterial hypertension to permit of a definite judgment as to its value. It is given in 5 minim doses (or better, in 20 to 30 minim doses of the 20% miscible solution).

The systematic hypodermic administration of the alkaloid yohimbin has also been used as a vasodilator, especially in hypertension associated with stenocardiac attacks. In order to prevent its stimulating effect upon the erection center and the respiratory center, it is usually combined with urethane, and a series of daily injections given for 20 or 30 days.

Electricity applied for five or ten minutes in the form of the high frequency current (arsonvalization) will sometimes reduce the blood pressure from ten to twenty points or more at a single sitting. Some patients have told me that they have felt much better after a course of such treatment but I have had no personal experience with this form of therapy nor with radium emanation, which for a time was much vaunted as a remedy for hypertension.

Carefully graded exercise, systematically kept up, is often followed after a time by a definite lowering of blood pressure in hypertensive patients. Fatigue and breathlessness should, however, be avoided. Walking on the level, mild golf, and gentle calisthenics, are suitable forms of muscular exercise for these patients.

Tepid baths exert a favorable effect upon the blood pressure but cold and hot baths are better avoided in advanced cases. In incipient hypertension, however, a patient may safely continue his usual form of bathing—a cool shower in the morning followed by a brisk rub, or a tepid bath in the evening.

When a quick fall in the blood pressure is desired in an emergency, say in a vascular crisis with threatened cerebral apoplexy, nothing is more efficacious than blood letting. If the patient be plethoric, one need not hesitate to withdraw a liberal amount of blood from a vein at the bend of the elbow. In less urgent cases, however, rest, a little nitroglycerin or erythrol tetranitrate, and a brisk purge followed by a few days of a lacto-vegetarian regime, will accomplish all that is required in the way of a direct reduction of blood pressure.

Regulatory Therapy In Hypertensive States.

Fully as important as the causal therapy mentioned above and much more important, in my opinion, than the functional therapy just referred to, is regulatory therapy in chronic arterial hypertension. By this I mean helping the body to react against the disease process or its cause.

In chronic arterial hypertension the organism reacts against the disease process by increasing the blood pressure through increase of the peripheral resistance and through hypertrophy of the heart, by increasing elimination by the kidneys or attempting such increase, and, when the kidneys are insufficient, by increased elimination of the end-products of metabolism through the gastrointestinal tract and through the skin.

These reactions on the part of the organism give us clues for regulatory therapy. We must (1) support the heart; (2) protect the kidneys; (3) provide for suitable elimination through the feces; and (4) keep the skin active.

Every hypertensive patient becomes, sooner or later, also a cardiac patient. We should do all that we can to avoid over-burdening the heart muscle and, in case it begins to fail, support it. Small meals rather than large meals, the avoidance of physical over-exertion, and strict moderation in the use of tobacco and of alcohol, if the patient be permitted to enjoy them at all, are important for the protection of an over-burdened heart muscle. Obese hypertensive patients should undergo a carefully graduated reduction cure with the idea of taking work off the heart. Once the

heart begins to fail, and the patient becomes breathless on moderate exertion, or the amount of urine passed is diminished in quantity, the patient should be required to rest and cardiotonic measures should be instituted. Powdered digitalis leaves (1½ grains) combined with caffein sodium benzoate (3 grains) may be given in capsule or pill thrice daily for a week, after which the dose of digitalis may be cut in half and the medication continued for a fortnight longer.

The hypertensive patient is likely, also, sooner or later, to become a renal patient. Even though there be no albumin or casts in the urine, the kidneys are scarcely ever normal when the hypertension has lasted for any considerable length of time. Great care, therefore, should be exercised to protect the kidneys in this disease by diminishing the work put upon them. Reduction of the protein intake and of the sodium chloride intake are important measures in this connection, though the degree of reduction of salt and protein necessary will depend upon the stage of the hypertensive process and of the renal involvement. Extractives should as far as possible be eliminated from the diet; the patient should be warned against ingesting foods rich in such extractives, particularly strong meat soups. The purin intake may also, with reason, be somewhat restricted; thus the patient should be warned against too frequent indulgence in sweetbreads, kidneys, liver, brains, and other foods rich in purins. Even the total fluid intake should be kept within moderate limits, for an excess of fluid raises blood pressure and throws increased work on the kidneys.

Daily evacuation of the intestines is of high importance for the hypertensive patient. Regularity of habit should be insisted upon, the patient going to stool at exactly the same hour each day. Drinking a glass or two of water on rising each morning and the same amount an hour before each of the other two meals will be found helpful. An abundance of fruit and green vegetables in the diet will help to overcome constipation and, if necessary, a little white mineral oil may be taken at bed time. These measures together with regular bodily exercise (calisthenics, walking, games) will usually suffice to maintain intestinal motility in the earlier stages of the hypertensive process. Patients with more advanced arterial hypertension do well to take a purgative once a week or once a fortnight; a pill containing bluemass and colocynth taken at bed time on Saturday night and followed by a Seidlitz powder or other saline on Sunday morning will usually be found to be effective and beneficial.

The skin also should be kept active; its vasomotor reactions should remain labile. Chilling of the skin should be avoided. In climates with great variations in the daily temperature, wool, if it can be borne, should be worn next the skin in winter. Sufficient gentle exercise should be taken each day to cause mild perspiration. A daily bath with free use of the flesh brush during the bath, and followed by a brisk rub down afterward, will do much to keep the skin in good condition and to promote vasomotor lability. In the early stages of hypertension, cold baths are probably permissible, but in the later stages a warm bath is preferable.

Symptomatic Therapy In Hypertensive States.

Attention to the single symptoms of which hypertensive patients complain should not be neglected by the physician, for much can be done, even in advanced arterial hypertension, to make the patient more comfortable by means of symptomatic therapy. Here I refer to single symptoms that persist despite due attention to the causal, the functional and the regulatory therapy already outlined. Among the more important of such symptoms are insomnia, headache, dizziness, a sense of fullness in the head, certain neurasthenic symptoms (especially apprehension, anxiety and nervousness), precordial oppression or pain, and nocturnal polyuria.

The insomnia of which hypertensive patients complain is usually referred to the early morning (matutinal insomnia). The patients may go to sleep at the ordinary time but wake at four or five a. m. and are unable to go to sleep again. Often a half glass of milk or the eating of a cracker or a few resistance exercises in bed will be followed by another period of sleep. When the insomnia is more marked, mild hypnotics, say a teaspoonful of the compound chloral and bromide mixture of the National Formulary, five grains of veronal, or a little paraldehyde will suffice.

For the headaches from which hypertensive patients suffer, a five grain aspirin tablet, the same dose of pyramidon or 7½ grains of phen-

acetin with ¾ grain of caffein sodium salicylate will usually give relief. If the headache be very severe, a quarter or a half of a grain of codein may be combined with these remedies. Morphine is rarely, if ever, necessary for such headaches, though it is unfortunately often given, and sometimes leads to drug addiction.

The neurasthenic complaints of hypertensive patients are often troublesome. Sometimes they are doubtless due to an associated cerebral atherosclerosis, but in many cases they seem to be more purely functional in nature. For these complaints a tactful psychotherapy in addition to general hygienic measures is the most efficacious. If the apprehension be very marked, small doses of sodium bromide or of the bromide and chloral mixture mentioned above, may be used.

For precordial oppression or pain, diuretin or theocin combined with caffein and monobromate of camphor will often be found helpful. If it be more severe, a tablet of nitroglycerin dissolved under the tongue will give prompt relief.

The nocturnal polyuria may be very troublesome, making the patient rise often at night, thus interfering with his sleep. If the bulk of the fluids ingested be taken before noon, and if the protein content and the salt content of the diet be suitably restricted, the nocturnal polyuria may grow less troublesome.

I have said very little about the treatment of the end-stages of the process with which chronic arterial hypertension is associated. In these end-stages we may meet with cerebral apoplexy, with myocardial insufficiency, with cardiac asthma, with pulmonary oedema, or with uraemic complications. When such complications appear, they must be met according to well-known therapeutic principles. But I would warn against too meddlesome a therapy in these end-stages. We should, of course, do everything that will really help, but we should not torture the patient by burdensome or painful procedures that are of problematic therapeutic value. We should rather protect him from all the unnecessary treatments that more wishful thinking would institute and do our best to bring solace and a euthanasic end when the time for it has arrived. In therapy, we do well to avoid the presumption of power that we do not possess. We should have clear heads that are aware of actual resources, but a fuddled optimism that essays the miraculous is to deprecated.

Conclusions.

1. In the management of patients manifesting high blood pressure, we make use of causal, of functional, of regulatory and of symptomatic therapy.

2. Though causal therapy is hampered by the unsatisfactory state of our knowledge of the etiology and pathogenesis of the conditions that underlie chronic arterial hypertension, still much can be accomplished by removal of foci of infection, by the prevention of chronic intoxications and by lessening the wear and tear of life by education in physical and mental hygiene.

3. Through appropriate functional therapy the blood pressure may be directly lowered with avoidance of threatening complications at times of angiospastic crises.

4. A deliberately planned regulatory therapy that helps to support the heart, to protect the kidneys, to keep the skin active, and to promote elimination through the intestines does much to prolong the period of activity and of comparative well-being of the hypertensive.

5. Finally, a judicious symptomatic therapy, made use of on occasion, permits of the relief of many of the special discomforts and annoyances to which hypertensive patients are subject.

1035 North Calvert Street.

ON THE EXTRACTION OF THE TEETH—A STUDY AND A PROTEST.*

By JAMES W. HUNTER, JR., M. A., M. D., Norfolk, Va.

It is a sad but truthful commentary upon the frailty of our human nature that if a small amount of a given preparation does some good, we feel that a larger amount will do more good and that a great deal ought to accomplish the best results. We may reason with ourselves that this is not so, but the thought remains and it is only through the combined experience of the ages that we have learned the fallacy of our assumption. Likewise, it is the common belief that if a certain drug be good for one disease it must also be good for another. It is again only by experience that we

*Read at the meeting of the Seaboard Medical Association of Virginia and North Carolina, Elizabeth City, N. C., December 7th to 9th, 1920.

learn the truth. It is the repression born of a long line of experience, reasoning and education, that alone holds us in check and makes man, even as Pascal[1] has described him, a reed, the feeblest in all Creation, but withal a thinking reed.

With the advent of the doctrine of focal infection and the demonstration by William Hunter[2] and others that the greatest sources of infection lie in the teeth and tonsils, there has arisen within our profession a group of men who would attribute all of our ills to the teeth or tonsils. Working upon this theory there have been cures almost miraculous. Aches and pains have disappeared, anaemias have given place to normal haemoglobins and the praises of the new treatment have been lauded to the skies. And, as we have said above, the old tendency has arisen: If, by the extraction of one or two teeth the patient has been benefited, why not remove them all? Surely, he will more speedily recover. But will he? In return for a toothless mouth, what have we to offer? Have we not been over-enthusiastic? Or, again, if the extraction of a tooth has resulted in an improvement in one patient, does it necessarily follow that the extraction of all the teeth of another will cure him? To be more than frank: Is such a procedure ever justifiable?

It is not my intention in any way to dampen the enthusiasm of many of my professional confreres, but it is distinctly my purpose to state clearly and definitely that there are centers of infection other than the teeth or tonsils. We all know this. Have we not seen the most remarkable improvement in patients after the removal of a diseased appendix, or the drainage of a pathological gall-bladder? Have we not noted an improvement after the free incision of any abscess? If we suspect pus, we must find it. But we must not expect that the teeth are responsible for all of our ills. There are other centers of infection. But, as the teeth are perhaps the members most frequently infected, they must be thoroughly examined both clinically and roentgenologically. We must not pass them by until we are entirely certain of their innocence.

Some months ago Dr. X., aged 40, consulted me in regard to his teeth. He suffered with severe rheumatism. His tonsils, which were found diseased, had been removed. His habits of living had been most moderate. His entire history was distinctly negative. On account of many fillings and devitalized teeth he had been advised to have all of his teeth extracted. Here was a case for study. Accordingly, roentgenograms were made of his mouth and every tooth carefully examined. Yet every tooth was negative. "My dear doctor," I replied, "it is my opinion that your teeth have nothing whatever to do with your condition. You may do as you please. But it is my advice to let your teeth alone until a focus of infection is distinctly demonstrated." Was my advice sound? Would the extraction of Dr. X's teeth have been of benefit? I remember another case. I was consulted on account of rheumatism and a roentgenological examination of the teeth requested. These, as before, were negative, but, upon careful questioning, an old Neisserian infection was admitted. The teeth remained untouched and the patient has regained his strength.

In direct contrast to this, I met sometime ago a friend (whom, by the way, I have never seen professionally) and to me he explained that, acting upon the advice of his physician, all of his teeth had been removed. He felt fine, had driven his motor car several hundred miles and was more than rejuvenated. Here it seemed was a logical example of the wisdom of the removal of septic teeth. Now, as I have explained, this gentleman was not my patient and I have never looked into his mouth. But I would explain that, as he belongs to the class of prosperous merchants and has always lived a clean and wholesome life, I have no reason for thinking that his teeth presented anything more than one would ordinarily find. The question arises: Was the wholesale extraction of this gentleman's teeth a justifiable procedure, even though it is admitted that in return for a toothless mouth there had been a perfect restitution of health? Would not the extraction of one or two really diseased teeth have been all that was necessary? Such would seem to be the opinion of Barker[3]. He says: "The time has come for plain speaking on this point. The *Literary Digest* recently made a long citation from an article on the unnecessary extraction of teeth. We must see to it that this abuse, so far as it exists, is perfectly censored, for otherwise justifiable extraction will become difficult." My friend's teeth had never been roentgenologically examined and

were extracted solely upon the advice of his physician.

If the teeth were a series of ivory pegs inserted into stone sockets, to paraphrase William Hunter, how many of our ills would be remedied. All that we would have to do, to be relieved of our suffering, would be to consult an ivory carver, who would make a new and fashionable set whenever we pleased, studded with gold, platinum or diamonds, as we preferred, and the stone-mason, who, chiseling new receptacles, would cement them into their proper places. "But the teeth being what they are, namely, highly developed pieces of bone tissue, possessing a richer blood and nerve supply than any piece of tissue in the whole body, and planted in sockets with the closest vascular relations to the bone and soft tissues of the periosteum and the gums," such a procedure is not to be entertained—nay, more, the most careful surgical manipulations must be conducted in the mouth. If life and health were dependent upon a game of chess, it would be our duty to learn the game. As life and health are in a large measure due to the perfect functioning of our teeth, it becomes our duty to study their anatomy, their physiology and their pathology.

A general description of a single tooth will suffice for all. It is composed of a substance called dentine, covered above the gum by a dense layer called the enamel and below the gum by one known as cementum. The upper portion assumes various forms, being as a chisel in the case of the incisors, a single cusp as in the canines, double cusps in the premolars or bicuspids, and with several cusps in the molars. Likewise, the roots assume different aspects. The incisors and canines have but one root, the premolars or bicuspids two, and the molars two or three, according to the position which they occupy. But it is important to note that the dentine is microscopically almost as complex as the Haversian system of the bones. Fibres of different densities alternate; tubules are supplied as a means of carrying nutriment. There is also a central canal running from the apex or extremity upward, containing a nerve, an artery and a vein. This is true of every root. As the canal extends upward it becomes larger and forms the pulp chamber and in this we have a plexus of artery, vein and nerve. This is, however, not the only method of nourishing the tooth. It is set into one or more alveoli in the upper or lower maxillae, as the case may be, and is, therefore, surrounded by a double layer of a highly vascular membrane, a modified periosteum, known as the peridental or periodontal membrane. Thus it is seen that, while the tooth is essentially a bony structure, it differs radically from the usual bone and, though it is highly specialized, it is subject to the same diseases as other osseous tissues.

It will be quite well to study the function of the teeth. If they had no function, Nature would not have provided them. All of the troubles of toothache, of painful extraction, of surgical manipulations, would have been avoided. But they have a duty to perform. Primarily, their function is for chewing, for masticating, for mixing the food with saliva. If we possessed a gizzard, as in the case of birds, we might pick up sufficient gravel to dispense with them. But such is not the case. If our natural teeth are gone, we must provide ourselves with artificial ones. It must be well noted that nowhere else in the body is there provided a substitute. If we are to preserve the best health, we must foster the art of chewing. But this can only be as long as the teeth remain intact. No matter how clever the dentist may be, he can not make teeth as good as those that Nature has provided. Most of them are like Tennyson's brook. To paraphrase: They slip, they slide, they bruise, they glide; and this goes on forever.

With the advent of education there have come various changes in our mode of living. We no longer dwell in caves. We no longer depend upon furs or skins. We are no longer the creatures of chance. Nor are we altogether the victims of the law of the survival of the fittest. With civilization there has come a mixed diet; our food is cooked. Consequently, the burden of chewing has been greatly lightened. The same strength is not required of the teeth and Nature, being conservative in what she provides, has provided us with weaker ones. Moreover, improper articles of diet have become popular. Of these perhaps the greatest is some form of sweets. Too much candy is injurious to the teeth. But I must explain that this again is one of the evils of civilization. We are living at a rapid rate. We crave stimulants; hence the craving for food or drink easily oxidized; hence the de-

mand for the carbohydrates and especially for sugar and candy.

But improper food or an excessive indulgence in sweets is only one of the factors that has made for bad teeth. A neglect of the simpler hygienic precautions is also to blame. Food has accumulated and remained between the teeth, to decay as in other parts of the body. The toothbrush has been a neglected instrument—a condition appalling and not confined to the ignorant elements of society. Thus, a fellow student at college received one day a letter from his sister describing a party given by one of her friends, in which the writer stated that the teeth of Mary Jane, which were usually of a greenish color, had for once really been cleaned. Now, who is responsible for this? The patient? Yes. The parent? Yes. The family physician? Undoubtedly. The obstinacy of the first, the neglect of the second, and the indifference of the third, are in large measure responsible.

To these there shall be added an heredity. Bad teeth, like bad health and poor physique, are passed from father to son. Nay, more, the transmission of certain diseases, notably lues, affects them. The strange, sad law, so aptly written in the decalogue, that the sins of the fathers are visited upon the children unto the third and fourth generation, is just as true today. Then, too, misfortune presents itself in other ways. Diseases of childhood, the administration of certain drugs, adenoids and hypertrophied tonsils modify the teeth, their structure and their function. And here again, it becomes the duty of the family physician to be most unrelenting in the course of his examinations. For these sins of omission, heredity and acquired misfortune, the victim can not be justly blamed.

It is here that a dental problem of the greatest complexity presents itself. If a septic tooth be removed from the mouth of a child there is a strong probability that the jaw will not expand properly. Consequently, abscesses are prone to develop in the second set, even before the teeth are erupted. Disease has become rampant in the mouth. Yet, on the other hand, as we have said above, if the offending tooth has been removed, an improper development and articulation has been caused, a field for the orthodontist almost limitless. Indeed, to provide a symmetry, there are some who have advised the removal of the three corresponding teeth, when one of the primary teeth has become affected. But, be this as it may, I would call the attention of the members of my own and of the dental profession to the care of children's teeth, to prophylaxis, to scrupulous cleanliness, to repeated examinations. For, if the doctrine of focal infection be true, it will explain in many instances the existence of puny and defective children.

And prosthesis is also often to be blamed. Crowns and bridge-work, as William Hunter has expressed it, "built in, on and around diseased teeth form a veritable mausoleum of gold over a mass of sepsis to which there is no parallel in the whole realm of medicine and surgery." And it is especially to the word *diseased* that Hunter has directed our attention. It is my opinion that no root or tooth should be used until it has been roentgenologically examined and pronounced sound. I do not like bridges. I do not like gold crowns. It is the experience of most roentgenologists that these are the places for sepsis. I hate to see good teeth ground down and used for abutments. I dislike the gold crown that covers up a tooth whose upper portion is gone. For I realize in the latter case the grinding necessary to prepare the natural crown for its gold covering, that no air can circulate, that malocclusion often results, that no ingenuity can incorporate the gold edge into the substance of the enamel, that the admission of germs is an ever present possibility and that the crowding of the inter-dental spaces is a constant source of irritation often accompanied by discomfort or even pain. It is not my desire to preach the doctrine that such dentures as crowns and bridgework must not be used. Prosthesis, like examinations in schools, is a necessary evil. But let me say that the future welfare of the mouth must be considered, that we should observe well the condition of roots and abutments, that as little manipulation be done as is consistent with the best work and that particular care be taken that the force of occlusion and grinding be distributed evenly and properly.

But perhaps the most perfect night-mare to both physician and dentist is the problem of the root canal. It is my idea that if the pulp chamber be entered by a necrosis of the enamel or dentine the pulp must be removed. The insertion of a metallic filling against a pulp in the experience of most of us invariably gives

rise to an apical abscess. And may we voice our opinion against the use of arsenious acid for destroying the pulp? If the action of this drug were limited to the pulp, we might pardon its use: for it is an easy and comparatively painless method of destruction. But what of the dentine? Arsenic will produce a necrosis of this tissue as well as of bone. Then, too, let us recollect the appearance of the destroyed pulp, a nasty, putrescent mass, easily capable of carrying infection to the apex. There is only one correct way of removing the pulp. It must be removed forcibly and under the most rigid aseptic technique. Thanks to the use of conductive and local anaesthesia the pain can be controlled. But the removal must be thorough: the canal must be filled as completely as possible. Here again, the use of the roentgen ray must be had and yearly examinations made thereafter: for, in spite of the best technique, apical granulomata often develop.

I have taken up the question of the root canal and the destruction of the pulp at some length. As no one now uses cotton soaked in creosote or other strong antiseptics or "mummifying pastes" as a root filling, these can be passed over. Suffice it to say, that they are destructive and that apical abscesses sooner or later develop. But, like Head,[4] I cannot believe a tooth with a root canal properly filled as dead. He says: "The real nourishment and maintenance of a tooth comes from the membrane supporting it in the tooth socket." Or, again: "If a tooth becomes infected, it may lose all gum attachment and die, but a tooth deprived of its pulp may still contain healthy cementum, dentine and enamel, all of which can be surrounded by healthy peridental membrane. Such a tooth is very much alive and should not be looked upon as dead, but as a living member capable of performing its valuable functions." With these facts before us, namely, that a necrosis extending into the pulp chamber calls for the removal of the pulp and that no pains must be spared for keeping the dentine healthy, that no sepsis shall be admitted, the root canal filling becomes of the utmost importance.

The morbid anatomy of a diseased tooth does not differ essentially from a pathological process elsewhere. All that it is essential to keep in mind is the normal anatomy and the disturbing or infecting agent. The processes are only specialized results upon specialized tissues. Thus, we may have a necrosis of the enamel, cementum or dentine, a congestion or infection of the pulp with its artery, vein and nerve, an inflammatory condition of the peridental membrane, a destruction of the maxillae or alveoli and the absorption of any portion of the dental system. We must further consider the cause of the destruction, the formation of pus, as pyorrhoea or apical abscesses, and the probable affect upon the system. Indeed, it is this last that has led to the great amount of research into dental pathology. For, as we have said above, if we could treat the teeth as we would carved ivory, we might fix them to suit ourselves and no harm could result.

But this is not so. The surroundings must also be considered. If a dental infection can produce a systemic infection, can not some systemic disturbance as well be a cause of dental infection? Hence, the logic of a complete examination of our patient. There are, as we have remarked above, centers of infection other than those of dental origin. Says Alvarez[5]: "I believe that we have lost our heads over the thing and that the time has come to call a halt. Men have obtained such beautiful results in some cases by extracting teeth that some of them are now trying to explain most disease on the basis of focal infection. In practice they pull the teeth first and if the patient returns unbenefited, they can then look to see what is the matter with him." Barker remarks: "Still another difficulty that I would mention is the abuse of tooth extraction by physicians who work independently of expert dentists, and who order wholesale extractions that are not indicated. A patient has chronic rheumatism and the doctor orders all of the teeth out without having a thorough examination made to see how many, if any, teeth are really infected. I have seen some melancholy examples of this: the whole mouth had been cleared of teeth, though the patient asserted that only two or three of the teeth were nonvital and even these had not been examined roentgenologically." With such opinions as these, can any examination be too complete?

In a recent address, Dr. W. J. Mayo[6] has explained that it is by what we see that we learn; that the senses of touch and hearing are very defective. He referred especially to the "romance of the chest." It is by what we see that we learn: it is by making ourselves

see and interpreting what we observe that we progress. Is not this true of the dental sciences? Is there a greater romance than that of the teeth? And yet we can learn so simply. All we need is a series of good roentgenograms of the mouth. These taken in conjunction with the history and physical findings should give a correct diagnosis in almost all of our cases. We must work in harmony with our dental brothers. McCormack[7] pleads for a standardization of roentgen technique: "It can and does produce radiograms that can be relied upon as the physical basis for approximately 75 per cent of the correct diagnoses of all dental lesions. Not only does such standardization bring out clearly and unmistakably the facts about conditions that may be suspected by the clinician, but it also brings to light, in numerous cases, conditions that are wholly unsuspected. It gives the clinician what should be the very starting point of his diagnosis." And again: "It is only by means of accurately made radiograms of the entire denture that the dentist can ascertain all the facts he should seek. I contend that dentistry can not achieve its best results without routine use of full-denture radiograms."

But it must be observed that McCormack has emphasized the words *standardization* and *accurately made*. It is only by good roentgenograms that we can achieve the best results. These should show the teeth in their correct relation to the alveolar processes of the maxillae and to each other. They should show definitely the varying densities of the different osseous tissues. They must show clearly and definitely the pulp chambers and root canals. The apices must be clearly visible. All structures must be finely defined. Such roentgenograms, I grant, can only be obtained by the expert; but it is only upon expert work that we can rely. It will be remembered that the teeth are set upon a surface curved from within outward, often from above downward, and that but a small number can be examined roentgenologically at one time. It is the problem of the map-maker. It becomes distinctly a problem of representing a curved surface upon a plane one and of eliminating a distortion. With a long distance the rays are more nearly parallel. But, even after all is said, there is in all roentgenograms of the teeth, as in the Mercator system of making maps, some distortion; and this must be distinctly remembered.

But the crux of any good roentgenogram lies in its interpretation. A technician can be trained to make a perfect roentgenogram, but it is only a skilled roentgenologist that can interpret it. Here arises a conflict between the medical man and the dentist. Each tends to his own interpretation. It is only just that we take into serious consideration the opinion of the skilled dental roentgenologist. He is more conversant with the structures of the teeth than we. It has been my good fortune to have learned much from him. It has been my privilege to be taken into the confidence of the better dentists of my native city and to have discussed their problems with them. I have had opportunities to refute or confirm my diagnosis both by viewing the removed tooth and to have had a report of the findings. But I would call the especial attention of all to the fallacy of some interpretations. The shadows of the mental and dental foramina must not be confused with infective granulomata and the normal markings of the antra interpreted as foci of infection. Likewise, the molar shadows must be recognized.

And, above all, the location of pus or infection must be carefully sought. A peridentitis is not an abscess. It may be a forerunner of pyorrhea but, while it remains simply a peridentitis, it is not a pus producer. Nor is the thickening occasionally seen around the alveolus to be regarded as a signal for alarm. It is the abscess around the apex and the formation of pyorrhoeal pockets by the necrosis of the alveolar process that must be viewed with dismay. But even here the size and position must be considered. If the lower one third of a tooth be firmly held in place by the socket and its pulp be intact, I can see no reason for its removal. I think the point well taken that the septic foci be well curetted and drained. Give Nature a chance to act. Likewise, I feel that a small abscess upon one root of a molar, while the others remain intact, should be given a chance. The operation of apiectomy must be considered. The same thing may be said of the teeth with but a single root. If an apiectomy offers anything I see no reason for not attempting it. If the peridental membrane be intact and the gums good, the dentine may be nourished through this means. In other words, the operative possibilities for

cure must always be recognized. But in the case of large abscesses, of extreme necrosis, of pyorrhea involving teeth already pulpless or devitalized, there is no treatment but extraction. There can be no half way measures. And let us remember well that it is of the infection and not of the teeth that we desire to rid the system and that no extraction is complete until the apical granuloma or other diseased appendages have been removed.

If you will recall the case of Dr. X., which we have reported above, I strongly advised against the removal of any teeth until a focus of infection had been definitely located. I thought and still think my advice sound, but I now feel more so, and it is with much pleasure that I can quote no less an authority than Dr. Clarence J. Grieves[8]. He sums up an exhaustive study of pathological teeth as follows:

"The writer is just as confirmed a believer in the doctrine that apically diseased teeth are infective foci, which may cause systemic disease, as he is in the fact that pulpless, apically well-filled, apically healthy teeth do not produce systemic disease and should be retained. The relation of these lesions to the various systemic diseases with which they are associated, has been discussed in previous papers. Quite recently it was ably presented * * * by Barker, whose statements the writer, from experience in private and hospital practice, heartily endorses. It may interest you to learn, in this connection, that the results reported by Barker, in clearing up focal infection, were obtained by radically removing and curetting all pulpless teeth periapically diseased, and by leaving in the mouth all apically well-filled pulpless teeth, not so diseased. Such results have been so obtained in the last seven years, with as many recoveries to the credit of this method as, if not more than, to the '100 per cent vitality' procedure. But it must also be noted that all other focal areas, elsewhere in the body, were likewise radically blotted out. Microscopic oral infection was not removed and macroscopic bodily foci ignored. Thus the focal 'hobby' was not over-ridden."

May I repeat my firm conviction that no tooth should be removed until a focus of infection be distinctly demonstrated? May I emphasize my conviction that all areas of sepsis be definitely removed? A conservatism on the one hand: a spirit of radicalism on the other. If we are doubtful and the clinical symptoms acute, it is best to be upon the safe side and remove the suspected member. May I urge upon the members of my own and the dental profession a closer bond and union? May I urge the conservatism and ripeness of judgment that comes only through deep and thorough study? I earnestly protest against the ruthless removal of sound teeth. What reward has our patient for his pain, his discomforts, his toothless mouth? As Cicero[9] has so aptly expressed it: "O tempora, O mores!"

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EPIDEMIC ENCEPHALITIS.*

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Since the fall of 1918 there has been prevalent in this country a disease popularly known as sleeping sickness. The characteristic pathological lesions of the disease are of an inflammatory nature and are found in the central nervous system, primarily in the gray matter at the base of the brain. This, together with the fact that one of the most striking clinical symptoms is a marked lethargy, led Von Economo[1] to apply to this condition the name encephalitis lethargica.

The present epidemic apparently had its origin in Central Europe during the winter of 1916, the first group of cases occurring in Vienna and neighboring territory. In 1917 the disease was recognized in France and in the early part of 1918 it appeared in England where it was at first confused with botulism. It was not until nearly a year later, i. e., in the latter part of 1918, that the first cases were observed on the eastern coast of this country and, according to House[2], it did not reach the

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Pacific coast cities until October, 1919. In 1919 and the early part of 1920 numerous cases were reported from many parts of the United States and Canada. During the past four years the disease has been recognized in practically every part of the globe, cases being reported from Austria, Germany, Italy, Switzerland, France, Spain, England, Ireland, North Africa, South Africa, various parts of North and South America and from Australia. While it has been pandemic the number of cases in any one community has not been large.

Flexner[3] has suggested a parallel between the spread of epidemic encephalitis and of acute poliomyelitis and from this parallel draws a warning. The great epidemic of poliomyelitis that occurred in 1916 was preceded by many smaller localized epidemics and numerous sporadic cases. He warns us that it is possible that the present small but widespread epidemic of encephalitis may be the prelude to a more terrible outbreak. In any event it behooves us to be prepared for such an eventuality and, by the proper treatment and care of sporadic or isolated cases, to avert if possible this serious consequence.

Clinical Aspect.—The characteristic lesions of the disease are widely disseminated throughout the central nervous system and their localization often varies in different cases. This fact explains the inconstant character of the clinical findings and it is only surprising in view of the variability of the pathology that the clinical picture remains as constant as it does.

The symptoms and signs of the disease are both general and focal. The most striking general symptom when present is the pathological lethargy. This may vary all the way from what is an apparent lack of attention on the part of the patient to a deep stupor or coma from which the patient can not be aroused. According to Flexner[3] this symptom is present in 80% of the cases. In the milder cases response to questioning may be elicited by speaking loudly and one may expect to find the patient when aroused quite rational and well oriented. Lethargy may come on gradually and, as there is often at the onset of the disease severe pain in the head, neck, shoulder girdle or limbs, the use of an opiate at this time may apparently plunge the patient into coma. A tendency to sleep during the day may alternate with restlessness and sleeplessness at night, or there may be an active delirium. Bassoe[4] reports six cases with two autopsies showing the typical pathological lesions in which lethargy was absent.

There may occur also a marked depression without other disturbances of consciousness. Severe headache at the onset is common, which may be associated with dizziness, photophobia, nausea and vomiting. There is nothing characteristic about the temperature curve. As a rule it is not high, varying from 99.5 to 102. Occasionally it rises very high. In one case reported by Jauros[5] a temperature of 108.5 was recorded just before death. In a case that I will refer to later the temperature at one time rose to 107.4. The length of the febrile period is variable but usually short, on the average lasting from one to two weeks, but the other symptoms will usually persist long after the temperature has subsided.

The onset may be gradual with headache, general malaise and symptoms referable to the respiratory tract, or it may be very sudden and stormy. Duration of the condition varies from a few weeks to many months. E. M. Hammes and J. C. McKinley[6] report one case not yet recovered fourteen months after onset.

Focal Symptoms.—Probably the most characteristic focal symptoms are those due to paralyses or weakness of the extrinsic eye muscles. The third, fourth and sixth nerves may be involved in whole or in part with a resulting ptosis and diplopia. There may be, however, merely a weakening rather than a paralysis of the extrinsic eye muscles. The patient is able to follow the moving finger but there is a noticeable inability to maintain the eye in other than the central position. The intrinsic eye muscles are also often affected with either a constriction or widening of the pupils and the light reflex is either very sluggish or entirely abolished. At this time the use of a mydriatic may leave the pupils widely dilated for many weeks. The motor fifth, the seventh and the ninth nerves are frequently affected. The paralysis or weakening of the muscles concerned in facial expression gives rise to the striking mask-like appearance of the face of these patients, resembling the so-called Parkensonian mask. More rarely the segmental motor nerves are impaired with resulting monoplegias, diplegias, paraplegias, hemiplegias, spasticity of the muscles of the extremities and at times definite contractures.

Occasionally a typical wrist-drop is seen. Sensory disturbances occur but are much less common than the motor lesions. At times areas of anaesthesia or hyperaesthesia can be demonstrated. Severe pains in the shoulder girdle and limbs are fairly frequent and are probably of the nature of root pains. Signs of true meningeal irritation are infrequent. There may be some spasticity but this will usually yield on moderate pressure. The Kernig and Brudzinski signs are characteristically absent.

Laboratory Findings—Spinal Fluid.—The most important findings from the diagnostic standpoint are in the spinal fluid. The fluid may be under slightly increased pressure and typically shows a moderate cellular increase of a mononuclear nature. Barker, Cross and Irwin[7] in seven cases found five increased (11-133), one normal and one bloody fluid. Boyd[8] found counts ranging as high as 244 but with many cases also showing no increase. Hammes and McKinley[6], reporting twenty-seven cases, record cell counts from normal to 57 per cu. mm. The presence of a positive globulin reaction seems a more constant finding. C. Dopter[9] has called attention to an increase in the sugar content of cerebrospinal fluid. The spinal fluid findings, while not consistently abnormal, are often an important diagnostic aid. A fluid under slightly increased pressure, with a positive globulin and a slight lymphocytic increase in a case in which poliomyelitis, syphilis and tuberculous meningitis can be excluded, is strong confirmatory evidence of epidemic encephalitis.

Blood.—There is no tendency toward anaemia in uncomplicated cases, both the red blood cells and hemoglobin remain approximately normal. The white cells are normal or a little increased. Counts as high as 24,000 have been recorded, but the average is 12,000–14,000.

Urine.—The urinary findings are of no particular significance. Albumin is usually present in moderate amount during the febrile period of the disease and there may also be a few casts. The association of somnolence with an albuminuria may suggest uremic coma but the differentiation can be readily made.

To summarize then, in a typical case one would have a condition that is characterized by a gradual onset, progressive lethargy, fever, paralysis of the extrinsic eye muscles with ptosis, diplopia and dimness of vision, weakness or paralysis of the facial muscles with a resulting masklike expression accompanied by a moderate leukocyte increase in the blood, a positive globulin and slight lymphocyte rise in the spinal fluid and albumin and casts in the urine. As has been pointed out, this typical picture does not always present itself; lethargy may be replaced by restlessness, insomnia or active delirium, the eye signs may be absent, paralysis may be lacking or doubtful, or the blood and spinal fluid may be normal.

Differential Diagnosis.—Epidemic encephalitis must be differentiated from acute poliomyelitis, cerebrospinal syphilis, brain tumor, tuberculous meningitis, botulism and other forms of encephalitis. Differentiation from poliomyelitis would be exceedingly difficult should both diseases appear at the same time in the same community, and in certain cases probably could not be done. As will be pointed out later, many observers believe that the two conditions are either identical or very closely allied. The Wassermann reaction of the spinal fluid confirms or excludes a diagnosis of cerebrospinal syphilis, and in every case this test should be carried out. The character of the onset, eye ground changes and other evidence of increased intracranial pressure will aid where there is a question of brain tumor. Tuberculous meningitis may closely simulate epidemic encephalitis and the spinal fluid may at first present the same picture. In tuberculous meningitis there is, however, a tendency for the cell count to rise as the disease progresses, while with encephalitis the reverse is true. The temperature curve is different in the two diseases. The presence of a leukocytosis may help. Of course, the finding of the tubercle bacillus in the fluid or the development of the disease in an inoculated guinea pig will clear up the diagnosis.

When epidemic encephalitis first appeared in England it was confused with botulism. This is not strange as the initial symptoms of the two conditions have certain points of similarity. Both may have at onset vomiting, marked constipation, ocular palsies, difficulty of speech and a low grade temperature. The differentiation can be made on the history, epidemiology, course of the disease and the findings in the spinal fluid. There are few instances reported in the literature of more than one case of encephalitis in a family or other closely associated group, whereas practically

all cases of botulism occur in group epidemics. Other forms of encephalitis are rare, although cases undoubtedly occur associated with certain general infections. These cases are more haemorrhagic in character and a bloody spinal fluid is a more common finding. In some cases, however, the differentiation is only made by the pathologist.

Pathology.—Pathological studies on epidemic encephalitis carried out by investigators in different parts of the world are in close agreement as to the lesions found. The principal injury occurs in the gray matter at the base of the brain although changes have been observed in the cord, especially in the cervical region, in the meninges and in other parts of the brain. The lesions consist of an inflammatory reaction with a collection of round cells about the blood vessels and to a certain extent a cellular infiltration of the nervous tissue. There are also found numerous microscopic haemorrhages and an infiltration of fluid into the surrounding tissue. The pathological changes are very similar to those found in acute poliomyelitis. The lesions are usually very diffuse but at times may be aggregated. Explanation of the various ocular palsies is found in the changes that have been demonstrated in the corresponding nuclei of the nerves affected.

Treatment.—Little can be said as to any specific method of treatment. Rest in bed from the onset of the disease with careful attention to the diet and to the eliminative functions is indicated. Many of these patients are obstinately constipated and the bowels require especial attention. Sedatives or stimulants are used as the occasion requires. During convalescence careful nursing, massage, hydrotherapy and electrotherapy and a bland nutritious diet are required. Barker, Cross and Irwin[7] recommend drainage of the spinal canal by repeated lumbar punctures. Netter[10] has found urotropin of value and it would seem rational to use it along with drainage. Netter[10] has also suggested the use of drugs to increase the secretions, on the theory that the organism causing the disease is present in the saliva and nasal secretions. He has tried salvarsan and neosalvarsan in these cases and found them of no value. G. Marinesco[11] reports three cases treated by intraspinal and subcutaneous injections of antitetanus serum with a clearing up of the symptoms within forty-eight hours. In view of the findings of Loewe, Hirshfeld and Strauss[12] care of the nasal secretions would seem to be of especial importance in controlling the spread of the disease.

Etiology and Nature of the Disease.—The question as to the origin and nature of epidemic encephalitis is a difficult one to answer. There are three principal views that have been advanced; first, that it is due to the same causative agent as influenza; second, that it is a special form of acute poliomyelitis; third, that it has an independent etiological entity.

There is not much to support the first contention except the coincident occurrence in England, France and America of the two epidemics, and the association of more or less mysterious nona with the influenza epidemic of 1891 in Europe. Against the assumption are many facts. While it is true that epidemic encephalitis and influenza have occurred synchronously in many areas, they have also occurred independently of each other. The original outbreak of encephalitis in Vienna in 1916 began a year before influenza made its appearance. Boyd[8] in reporting the Winnipeg epidemic states that there had been no influenza in Winnipeg for a year before the outbreak of encephalitis and that none of the numerous cases included in his report had had the disease. Again, there seems to be no relationship between the severity and extent of influenza in a given community and the number of cases of encephalitis. Following the great influenza epidemic of 1891 no condition similar to epidemic encephalitis was described in America. It is possible that influenza may prepare the ground for encephalitis lethargica by breaking down body resistance and thus allowing the invasion of an organism not capable of overcoming the resistance of a healthy body.

The evidence that this disease is identical with or allied to acute poliomyelitis is interesting but not convincing, and is principally derived from the fact that the pathological lesions of the two diseases, while varying in location, are very similar in character. Also, the clinical symptoms of the cerebral type of polio are somewhat similar to those found in epidemic encephalitis. In further support of this theory is the fact that Von Weisner[13] claims to have isolated an organism from a case of encephalitis and reproduced the disease in a monkey. Wilson[14] makes a similar claim. Cleveland and Campbell[15] recovered an

organism which, when introduced into sheep, calves and horses, reproduced similar symptoms and lesions. Kraus[16] and his co-workers have found a small coccus in horses suffering from a disease similar to encephalitis, while Loewe, Hirshfeld and Strauss[17] report the isolation of an organism from the nasal secretions and spinal fluid of patients suffering from encephalitis and the reproduction of the condition in experimental rabbits. All the organisms described have been a very small coccus or diplococcus and bear a strong resemblance to each other and to the organism isolated by Flexner in cases of poliomyelitis. Barker, Cross and Irwin[7] have suggested that the organism may be related but not identical.

Against the assumption of the identity of the two diseases are numerous facts. Seasonal occurrence—Encephalitis occurs principally during winter and spring; polio during summer and fall. Age incidence—Encephalitis occurs at all ages but principally in adults, while polio is strikingly a disease of childhood. According to Holt[18], 80% of cases occur in children under four years of age. Paralyses of the muscles of the extremities are common in polio and are lasting, in encephalitis they are rare and fleeting. Typical cases of the two diseases have not been reported in the same epidemic, nor have combination forms been seen. The clinical course and terminal stage of the two diseases are different. Leukocytes as a rule range higher in polio, as does the cell count in the spinal fluid.

In view of the above facts, it seems probable that epidemic encephalitis is a distinct clinical entity. It is not necessary, however, to argue that it is a new disease or that it is of recent origin. Medical literature abounds with descriptions of epidemics of a lethargic type of encephalitis which from time to time has made its appearance in Central Europe.

As has been stated above, several investigators claim to have isolated a very small coccoid organism from cases of epidemic encephalitis. Of these the work of Loewe, Hirshfeld and Strauss[12 & 17] is the most extensive and convincing. The organism described by them will pass through a Berkefeld filter and thus falls in the group of so-called filterable viruses. Spinal fluid and nasal washings taken from clinical cases of the disease were filtered through a Berkefeld filter and the filtrate cultured on kidney-ascitic fluid. They were able to grow on this medium a very small globoid organism which when injected into the brain of rabbits produced the symptoms of the disease and similar pathological lesions and they have been able to again recover the organism from the infected rabbits. In fact, they have carried their organism through twelve generations, still retaining its infective characteristics. Using nasopharyngeal washings filtered as above and injecting the filtrate intracranially into rabbits, they were able to produce typical lesions in 78% of the cases tested. Out of seventeen nasopharyngeal washings cultivated they recovered the organism in eleven or 64%. Inoculation of rabbits with spinal fluid gave positive results in 75% of their cases, while cultures of spinal fluid were positive in 50%. While their work has apparently been carefully carried out and thoroughly controlled, confirmation by other investigators will be necessary before it can be fully accepted.

SUMMARY.

During the past four years an epidemic disease affecting primarily the central nervous system has spread over practically the whole world. It is characterized clinically by fever, malaise, lethargy, paralyses, especially of the facial and extrinsic eye muscles, a slight leukocytosis and, at times, changes in the spinal fluid: pathologically by inflammatory lesions, especially of the gray matter at the base of the brain with round cell aggregation about the bloodvessels, microscopic haemorrhages and cellular and serous infiltration of the nerve tissue. The nature of the disease is undetermined, but evidence rather points to its being an independent disease. Its etiology is at present unknown but the work of certain investigators indicates that the causative agent may be a very small globular filter-passing organism and that this organism gains entrance to the body through the nasopharynx.

Report of a case is appended.

B. H.—Female, white, single, aged 42, native of North Carolina. Referred by Dr. B. M. Baker.

COMPLAINT.—Pain in arm, dimness of vision, double vision, somnolence.

FAMILY HISTORY AND PAST HISTORY.—Not significant except that patient had attack of influenza in middle of January, 1920, followed by chronic cough. Did not remain in bed but was up and down.

Present Illness.—In the early part of February, 1920, patient became restless, could not sleep at night, complained of severe pain in both arms which grew progressively worse. During the month family noticed that face was expressionless, that patient was inattentive and would fall asleep at odd times during the day. The latter part of February following hypodermic of morphina for relief of pain, patient sank into a lethargic state which persisted up to admission to the hospital. At the same time she began to notice dimness of vision, complained of double vision. Was admitted to the hospital March 2, first seen on that date.

Physical Examination.—Temperature 99, pulse 92, respiration 22. Patient is a fairly well nourished, middle aged white woman, lying flat on her back in bed in no discomfort. Eyes are closed, patient appears stuporous, can be aroused easily, responds to questions intelligently. There is, however, a distinct lagging of response, voice is monotonous. Memory for recent events (for the day) is good; for events of the last three weeks is poor. Patient is well oriented as to time and place.

Skin negative except for a few scattered petechiae.

Head.—No scars or depressions. No tenderness over the sinuses or any part of the cranium.

Ears.—Hearing normal, no discharge.

Face.—Forehead is wrinkled, but otherwise the usual facial lines of expression are smoothed out giving a masklike appearance. Facial movements can be made but with difficulty. Difficulty in showing teeth and drawing mouth to either side. Can not whistle.

Mouth.—Mucous membranes are of good color, tongue is coated, protruding with difficulty in the midline. Can push tongue to the left but can not to the right. Marked tremor develops when it is pushed over. Marked dental caries and pyorrhea alveolaris. Throat negative.

Eyes.—Ptosis of both lids, pupils dilated, left slightly larger than the right, responds sluggishly to light and accommodation. All of the extraocular movements are poorly carried out. Patient rotates eyes only part way to the right or left and there is a tendency for them to return to the midline. Definite diplopia can not be demonstrated. Following one drop of 2% homatropine in each eye, pupils became widely dilated and remained so with absence of reflexes for many weeks. Eye ground examination negative.

Nose negative.

Glandular System negative.

Lungs normal throughout on percussion, auscultation and palpation.

Heart.—Area of relative cardiac dullness measures 2½x9 cm. P. m. i. in the 5th i. s. 7½ cm. from the median line. Heart sounds normal in intensity, no murmurs, no friction sounds. Pulse equal on the two sides, regular in force and rhythm, volume full and well sustained. Rate 96 per minute.

Blood pressure 120/75.

Abdomen negative.

Rectal examination negative except for external hemorrhoids.

Genital examination negative.

Extremities, Arms.—Upper arms are slightly spastic. Well marked wrist-drop. Complains of severe pain in the arms which can not be definitely localized. No tenderness along the course of the nerves. There is a marked muscular weakness in both arms, deep reflexes of arms increased. There is a well marked hyperaesthesia over practically the entire surface of both arms.

Extremities, Legs.—No muscular rigidity in the legs, normal muscle tone. Sensory examination negative. Knee kicks slightly increased, ankle jerks normal. Kernig and Brudzinski negative. Suggestive Babinski on the right. Abdominal reflexes present and normally active.

Laboratory Findings.

Blood

RBC 4,600,000
Hgb. 79%
WBC 5,000
Differential...300 cells (Wright's stain)
PMN 76.3%
PME 1.3
PMB 1.3
SM 13.0
LM 3.0
Trans. 5.0
No abnormal red cells
No myelocytes

Urine

Reaction .....Acid
Color...Straw, slightly cloudy
Spec. Grav.....1020
Albumin .....Negative
Sugar .....Negative
Acetone .....Negative
Diacetic .....Negative
Microscopical Negative

Spinal Fluid

10 cc. removed
Slightly increased pressure
Cell count 6 per cu. mm.
Globulin
Ross-Jones..Negative
Pandy's ....Negative
Culture .....Negative

Wassermann

Spinal Fluid...Negative
Blood .....Negative

Stool

Parasites .....Negative
Blood .....Negative

Successive examinations of Spinal Fluid showed:

	Cells per cu. mm.	Globulin
March 12	12 (all monos)	Negative
March 16	9	Negative
March 25	5	Negative
April 12	6	Negative
May 5	4	Negative

COURSE IN HOSPITAL.

Patient remained practically afebrile with occasional elevation of temperature to 99.5 until the 6th of April. During this time her general condition apparently improved, she was less lethargic, pains in arms were somewhat less marked, and apparently she was convalescing.

April 7-8 there was a sudden rise in temperature to 104. At this time her blood count showed 8,400 leukocytes; the urine one plus albumin and a few white cells; no significant change in the spinal fluid. Between April 8 and April 23 the patient maintained a high, somewhat irregular fever, ranging from 102 to 104.5. During this period the leukocyte count rose steadily to 16,300 with 85% polymorphonuclears on April 23, urine showing a large amount of albumin and many pus cells. During this period patient also became much more lethargic, sank into practically complete coma from which she could not be aroused. She apparently was suffering severe pain in both lower extremities, especially the right leg. This leg was constantly being drawn up. No definite abdominal tenderness could be elicited.

On the 23rd, in view of the urinary findings, a pyelitis was suspected. The kidneys were catheretized with recovery of practically normal urine, except for the presence of albumin from both kidneys. The night of the 23rd her temperature rose steadily to 106, was maintained at that level during the following day and the night of the 24th rose to 107.4. The patient's condition appeared desperate; respirations were rapid and shallow; pulse 150. During the night temperature fell slightly and continued to fall during the two succeeding days to a level of 103. Patient was still comatose. There was a gradual fall of temperature during the month of May, temperature finally reaching normal on the 1st of June and remaining so thereafter.

During this period the urine cleared up except for a trace of albumin and occasional pus cell. The white cells which had risen at one time as high as 23,800, returned to normal, and there was a gradual improvement of consciousness. With return of consciousness, patient complained of severe pains in both legs. Pain in the arms had entirely disappeared.

Patient when discharged had so far recovered that she was able to return home on June 18. At that time she was apparently mentally clear, showed considerable wasting of the muscles of the arms and legs with contracture of the left arm and a slight degree of the right arm which was gradually improving. There were no outspoken paralyses but marked muscular weakness. Pain in lower extremities had gradually improved but had not entirely disappeared, and there was definite muscular weakness, especially in the right leg.

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SYPHILIS OF THE CARDIO-VASCULAR SYSTEM.*

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This is a rather difficult subject for the average practitioner to discuss with any degree of satisfaction, because he either lays too little stress on the existing pathology or he attributes the condition of his patient to some source other than luetic.

With our present laboratory facilities, including the Wassermann test, there is no excuse for us to pass these conditions by im properly diagnosed.

This subject is divided as follows: Arteritis, Aortitis Syphilitica, Heart Syphilis and Phlebitis Syphilitica, which will be discussed as above named.

ARTERITIS.—The classic work of Heubner, in which he called attention to the importance of lesions of the smaller cerebral vessels, which are always characteristic of endarteritis, in which the intima is the seat of proliferative change, still serves as the basis of our knowledge of the subject. The disease does not limit its ravages to the intima, for in advanced specific arteritis all coats may be invaded. The student of medical literature is referred to Virchow's comprehensive treatment of visceral syphilis, which is one of the most marvelous additions of the past century.

It can be easily understood how far-reaching the influence of specific arteritis may be, and how many organs may suffer at the same time. Such weakening as is caused by endarteritis specifica of the arterial walls may lead to miliary or large-sized aneurysmal dilatation, with the included secondary manifestations. (Aneurysms of the aorta and larger vessels are separately considered.) The changes which follow in the cerebral vessels and their baneful results, with prognosis, are considered with Cerebral Syphilis.

With practically all specific arteritis the Wassermann reaction is positive. *Specific arteritis invading the coronaries* gives rise to threatening symptoms, including the complex of *angina pectoris.* It must be remembered that stenocardia is not always, even during early life, of specific origin. Heredity is an important factor in many; but in young subjects evidences of arteritis, including coronary invasion, should always lead to the strong suspicion of syphilis as a cause, to corroborative Wassermann tests, and specific treatment. If the myocardium is not too far degenerated and other vital organs are not invaded—kidney, brain, etc.—the prognosis is fairly good.

No specific arteritis is so far advanced as not to justify specific treatment, for in extreme cases we are often unexpectedly successful. Results have often been encouraging in cases which suffered repeated anginoid attacks.

Blood-pressure study of these cases needs to be correctly interpreted to give data of value. If the endarteritis has existed during a long period, has been extensive, has involved the renal and mesenteric vessels, there will probably be a high systolic pressure with a high pulse pressure, a tense and thickened radial pulse. These cases also have decided accentuation of the second aortic sound and often an aortic systolic murmur. The aorta is included in the process and shows the characteristic changes of specific aortitis. The result of blood pressure study alone in such a case is valueless; this must be added to all which the case presents before prognosis is justified.

Such cases as we have above mentioned are of serious character, they demand a guarded prognosis and before it is positively given, the effect of treatment should be studied. With some of these cases, the blood-pressure may be normal or reduced; such reduction is then evidence of myocardial weakness, and the prognosis is thereby unfavorably influenced.

Specific obliterating endarteritis may cause gangrene of an extremity or less striking trophic changes. We have found intermittent claudication, erythromelalgia, and symmetrical gangrene of the finger tips (Raynaud's disease), in which the underlying arteritis proved to be specific and in which rigorous treatment led to the recovery of some, and the material improvement of others.

Specific amyloid degeneration of small and large vessels is always serious; it is usually associated with similar degenerative processes

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in other vital organs, and is not often relieved by treatment. When the kidney is involved in a similar process and there is anemia gravis, but little hope can be given.

For the purpose of the prognostician, it is necessary to assume that all unexplained arteritides in young subjects should be suspected to be of syphilitic origin, and demand the refinements of diagnosis and therapeutic tests before final conclusions are reached. Naturally, the prognosis of arteritis specifica depends largely upon the importance of the organs directly involved, and the influence of the changed relations.

Aortitis Syphilitica.—Specific aortitis may lead to aneurysm of the aorta; it may be associated with non-specific arteriosclerosis of the aorta, but its seat is characteristic in almost all cases during its early existence. Uncomplicated specific aortitis causes irregular thickening of the aortic wall (fibrous thickening), with patches of thinner tissue between these plaques. It invades the ascending aorta and the arch. There is a distinct line of demarcation which separates the changed aorta from the valve and tissues of the aorta directly above it. The prognosis is uncertain. Physical signs of aortitis and subjective symptoms often disappear under treatment.

There are, according to Grassmann, accidental or functional murmurs in 40 per cent. of cases during the secondary stage of syphilis. In occasional cases during this stage, there may be threatening incompetence of the heart with low blood-pressure and dilatation of the right heart. Fever and anemia may be present. The prognosis is good in almost all of these cases. One of the dangers occurs from suddenly arising pulmonary edema.

Heart Syphilis.—There is no tissue of the heart in which specific disease may not cause organic change. We have mentioned coronary and aortic disease; the endocardium may degenerate, the aortic valves may particularly be the seat of specific deposit and change, the myocardium may be uniformly infiltrated and degenerated—it may hold one or more gummata—the pericardium may be involved; in all of these the Wassermann reaction is likely to be positive.

The Wassermann test has given us positive information concerning an enormous material which was formerly unexplainable. We refer to those heart lesions, the pathogenesis of which we did not understand—including especially the degenerative rather than the inflammatory processes—usually found during middle life when arteriosclerosis and disorganizing changes are unexpected. The larger number of these lesions are aortic, endocardial, myocardial and coronary. The aortic lesions are in the ascendency. In over 50 per cent. of these unexplained cases the Wassermann reaction is positive, and the prognosis is accordingly improved. Aortic valvular lesions are found with positive Wassermann reactions in over 55 per cent. of our cases.

There are unquestionably many specific lesions of the heart which never give rise to symptoms, which remain undetected, and are cured by the treatment of the constitutional infections, just as the large proportion of positive Wassermann tests of the cerebrospinal fluid and its cellular elements prove that changes in the nervous system may exist without subjective symptoms, which also disappear under similar conditions.

We have elsewhere called attention to the evanescence of physical signs, the disappearance of murmurs with positive organic disease. Recent additions to our knowledge prove these cases to be of specific origin, and materially improve their prognosis (Elsner).

The prognosis of specific myocarditis depends on the length of its existence, the associated lesions, and the effect of specific treatment. Certainly the prognosis of the degenerative diseases of the myocardium due to syphilis is much better than non-specific disease. Harlow Brooks says: "Nearly all cases of syphilis are well treated at least for so long as mucous membrane or skin lesions present themselves; just as long as these show, the patient is willing to submit himself to treatment and to observation. Hence it is, that at least for a time, many or most cases of cardiac involvement are correctly treated even though unrecognized."

Lesions of the heart of specific origin, including degenerative myocarditis, valvular lesions, arteritis of the heart vessels, may become latent; they may "heal and resorb under proper medication." There are unquestionably many heart lesions during the early stages of syphilis which give rise to no symptoms—which unchecked would prove fatal—but which are stayed and cured by specific treatment. Cardiac lesions of late syphilis may often be

threatening, the heart may be insufficient and yet under treatment there may be recovery or marked improvement. The prognosis cannot be given until the treatment has been sufficiently tested. Brooks says: "It is also true that a cheerful prognosis is not permissible until it has been determined just how much may be achieved by proper treatment. So frequently have I been deceived in both directions, that I now refuse prognosis until the case has been under treatment at least for a time—after which from the degree and character of the improvement or its failure, one may quite accurately prognose what may be expected with a further prosecution."

The Stokes-Adams phenomenon has in a few cases been found with specific degeneration of the intraventricular septum (His fibers); gummata have been found in several cases post mortem. Such cases offer a serious forecast, though improvement or recovery may follow rigorous treatment.

All cases of infiltrating specific myocarditis must be considered serious, and justify only a tentative prognosis until the horizon is cleared by treatment, including rest.

Phlebitis Syphilitica.—Changes in the veins may lead to phlebitis, phlegmasia alba dolens and erythematous nodes associated with fever and exacerbation of constitutional symptoms. In all of these conditions the prognosis is favorable.

TREATMENT OF INOPERABLE CARCINOMA OF THE UTERUS WITH RADIUM.*

By S. W. BUDD, M. D., Richmond, Va.

Cancer of the uterus takes a most conspicuous place in malignant disease affecting woman. Schroeder, in a series of nineteen thousand cases of women dying of cancer, showed that 6,548 had carcinoma of the uterus. Similar results were obtained by Wagner in his post mortem studies at Prague and Vienna. It is due to the frequency of uterine cancer that the incident of malignant disease in women is more frequent than that in men.

In our studies as to the distribution of cancer of the uterus, we find that the disease is unknown to the aborigines of Africa, and that it is less frequently found among the Asiatics than among the white race. It appears that the more highly a race becomes developed morally and intellectually, the more susceptible it becomes to this scourge, yet, all observers agree that the disease is more frequently met with in the lower ranks of highly developed people, and that it is seldom seen in women who lead a life of ease and luxury. Oskar Muller in a series of 577 cases found that the patients were practically all of the laboring class. Sinclair states that "so marked is the difference of incidence of uterine cancer in the lower and higher members of society that it might be reasonable to affirm, that if we could place all the lower orders who suffer from privation and depressing environment for a generation or two in the position of the more favored we would stamp out cancer." Of course Sinclair oversteps the bounds of our imagination, but he emphasizes in no uncertain way that the disease affects primarily the working class.

The negro in Africa shows a racial immunity to uterine cancer, but in America, and especially in the southern States, this race seems just as susceptible to the disease as the white race. Changes in living conditions and possibly an infusion of white blood are responsible for this loss of immunity.

We have gained much valuable information from clinical or histological researches in cancer of the uterus. From this data the diagnosis of a moderately advanced uterine cancer is made with ease, and even the diagnosis of an early case should offer few difficulties to a careful and painstaking examiner. On the other hand, little guidance has been given us by gynecologists and pathologists as to the treatment and the origin of this disease. It is to be hoped that radium therapy in conjunction with operative procedures will offer in the future a more effective treatment for this dreaded disease.

Uterine cancers differ little histologically from those found elsewhere in the body. We recognize two types of them, one arising from the body of the womb and the other from the neck of the womb. The former is usually an adenocarcinoma, while the latter is most often a squamous cell carcinoma. The cancers of the body of the womb are not so malignant as those of the cervix. They may smoulder a long time in the uterine wall without invading the surrounding structures. Cancers of the cervix, on the other hand, are very malignant, and they invade the broad ligament and the

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surrounding structures early in their growth. The internal os and the musculature of the uterus act as a temporary barrier to the invasion of the cervical cancers to the uterus, but this resistance is soon swept aside and the growth rapidly spreads through the uterus. In carcinomata arising from the body of the womb, the metastasis to the surrounding lymph nodes is late, and the lumbar glands are the ones chiefly affected. In carcinomata of the cervix, metastases are relatively early and the glands at the brim of the pelvis near the iliac vessels seem to be the first to be invaded. Because of the early invasion of the surrounding structures, and especially of the lymphatics, operative intervention as well as all other modes of treatment have met with comparatively poor results.

The incidence of cancer of the body of the womb is apparently five per cent, while the remaining ninety-five per cent. arise from the cervix.

Uterine cancer is most insidious in its onset; in fact, the disease may be well advanced before the patient consults a physician for advice. Leucorrhea, hemorrhage and pain are perhaps the most important symptoms of the disease. With any of these symptoms occurring about the time of the menopause, a careful pelvic examination should be made and, if there be doubt as to the existing condition, a gynecologist should be called to verify the diagnosis. In this connection I would like to emphasize the importance of general practitioners paying more attention to their patients during the menopause period if surgeons and gynecologists are to get the best results from their operations.

The first indication of the disease is a persistent leucorrhea which may be mucopurulent, but which, as a rule, is serous in character. As the cancer grows and invades the surrounding tissues, the discharge which at first has but slight odor may become offensive, and, especially is this true, when the cancer commences to break down and suffer with a saprophytic infection. The odor of the discharge, according to some authorities, is characteristic but, in my opinion, the odor is nothing more than that arising from putrifying tissue. Hemorrhage is usually a late manifestation of the disease. A small hemorrhage and especially one that follows trauma may appear early, but when a large spontaneous hemorrhage, or what the laity speak of as flooding, occurs the disease is pretty well advanced. This symptom causes more patients to seek the advice of a physician than any other. Pain is usually due to the invasion of the growth into the adnexa, and therefore it may be classed as a symptom of an inoperable rather than an operable carcinoma; although at times pain may be a prominent symptom from the very onset and may be responsible for causing the patient to have an examination while the disease is in its incipiency.

Upon what do we base our opinion as to the operability of carcinoma of the uterus? Some state that, when there is no fixation of the womb, or when there is no invasion of the glands in the region of the growth, or when there is no invasion of the vagina, the disease may be treated by operative intervention. There must be a vast difference of opinion in our clinics as to what constitutes an operable cancer of the womb. Statistics vary in this regard from ten to fifty per cent. of all cases.

The mental suffering associated with carcinoma of the uterus, and especially with the inoperable variety, probably exceeds that of any condition known to medicine. The knowledge that a loathsome disease has invaded the organs that woman holds most sacred, and that her sexual life is forever doomed, coupled with the anxiety that some day she may bleed to death in one of her flooding attacks, makes her life a miserable existence. As the disease progresses, a fetid leucorrhea adds to her discomfort and she is no longer able to keep her secret for, wherever she goes or wherever she may be, the odor from the foul discharge haunts her. She realizes now that she is a *persona non grata* to her acquaintances and an object to be tolerated by her friends and family. Small wonder that more of these patients do not commit self destruction.

Inoperable cancer of the uterus up to several years ago was treated palliatively with cleansing douches, with cauterization, with curettement and with the ligation of the vessels, but the relief obtained by these procedures was temporary and the results probably did not justify the means.

During the past eighteen months, I have treated forty-five cases of inoperable carcinoma of the cervix with the following results: In nine, or twenty per cent of the cases, the

disease has disappeared locally but just what is going on in the adnexa or just when the disease may again appear in the cervical region it is difficult to prophesy. Four of the cases have shown no signs of the disease for a year, three for a period of six months or over, and two under three months. Twenty, or forty-four per cent. of the cases, have died and of these twelve were hoplessly involved when they presented themselves for treatment. Sixteen, or thirty-six per cent., are still under treatment and of these seven are doing well and nine are showing no improvement. There is one case that has been under observation for two years and is not included in the nine that have cleared up locally. So far as I can see, there is no evidence of the disease in the region of the cervix but she has an extensive metastasis to the glands of the groin and pelvis and x-ray plates show involvement of the spinal column. Of the forty-five cases, thirty-six complained of flooding and, of this number, thirty, or eighty-three per cent, have been relieved of this symptom. All of these cases (forty-five) suffered with a foul leucorrhea and of these nine, or twenty per cent., were relieved, while 22, or forty per cent., were improved. In fifty per cent. of all cases there has been a gain in weight and a temporary loss of cachexia that was so noticeable before the treatment was instituted. In three there was apparently an acceleration of the growth. In six a vesico-vaginal fistula has developed.

It is remarkable to see the improvement wrought in some of the cases after several radium applications. In reviewing my own histories and the records of patients treated by me for other physicians and supplied me by them, I am struck by the similarity of the reports. In brief, a favorable post radium note may read "a patient with a large epithelioma of the cervix, suffering with a cachexia, flooding and a troublesome leucorrhea, comes back today feeling much better. She has gained weight, the discharge has diminished, the flooding has stopped and the tumor has diminished in size." One of the most encouraging signs is the change in the mental side. She feels that something is being done for her, she is no longer so apprehensive of the future and she entertains ideas of recovery in spite of the fact that she is suffering from an incurable disease.

In the treatment of inoperable carcinoma of the cervix it has been our custom to advise an extensive cauterization of the growth before the radium is applied and, if during the treatment an exuberant growth appear in the region of the cervix, we again cauterize. We always like to have a crater in place of the cervix, and this crater can best be preserved by the cauterization.

After the soreness arising from the cauterization subsides, we apply needles of radium element into the growth and out toward the broad ligament. We apply two to four needles of twenty-five mgms. each and allow them to remain from twelve to twenty-four hours. Our doses of radium range from seven hundred and fifty to fifteen hundred mg. hours with no screening so that the patient gets the benefit of some of the soft rays as well as the gamma rays. The vagina is ballooned out with as much packing as it will hold so as to keep the bladder and rectum as far as possible from the zone that is being radiated. If there is much invasion of the vaginal wall, we think it best to apply the radium screened by brass and rubber and held in place against the growth, as well as we are able to do so by packing. It is our custom to repeat the treatment three times at intervals of three weeks. We then let a period of two or three months elapse and have the patient come back for another series of treatments.

In four of the nine cases that showed improvement, one series of treatments was sufficient to remove the condition locally. Three of the nine have required two series and one case required only one treatment.

In conclusion I would like to emphasize:

1. That cancer of the womb is primarily a disease of the working class.
2. That one third of all cancers common to woman are carcinomata of the uterus.
3. That a relatively small percentage of the carcinomata cases are operable.
4. That radium will not only relieve some troublesome symptoms arising from inoperable carcinoma of the uterus but will cure a certain percentage of them locally.

305 *Professional Building.*

Their Drawback.—Mrs. Blank (to laundress)—"And how is your newly married daughter getting on, Mrs. Brown?"

Mrs. Brown—"Oh, nicely, thank you, ma'am. She finds her husband a bit dull; but then, as I tells her, the good ones are dull."—Boston Transcript.

PITUITARY HEADACHE.*

By FRANK H. REDWOOD, M. D., Norfolk, Va.

The role that the pituitary gland plays in the production of a certain type of headache cannot be doubted. The group of symptoms and signs found in a new growth of the hypophysis is well known and, when present, the diagnosis is not difficult. But it is in the early and less easily recognized disturbances of the pituitary that we should pay more attention because this is the stage in which we are able to do the most for the patient. A frontal or bi-temporal headache may be the first sign of a disturbed secretion of the pituitary gland.

The cause of the headache is presumably an enlargement of the gland, which is due to some compensatory demand made upon it. The gland enlarges periodically, for instance, at the menstrual period and at the age of adolescence so that we should expect headache from this source to occur more frequently in women and young adults, which in my experience has been the case. This is the only gland of internal secretion which is situated in a bony framework, the clinoids in front and behind, the floor of the sella below, and the dura above, so that practically the only direction in which it can enlarge is laterally. If it were situated in loose tissue as are the other endocrine glands, it could enlarge from whatever cause, without producing pressure symptoms, but situated as it is in what might be termed a bony box, it is obvious that only slight increase in size is necessary to produce symptoms due to pressure. So there must be two necessary factors to produce a headache from this source, viz.: the size of the gland and the size of the fossa.

We are led to believe that a normal pituitary gland has a normal sella turcica. But given a case showing pituitary signs, the x-ray will show some alteration in the contour of the sella. We may find a very small and shallow sella with the clinoids bridging over the fossa, a sella of normal size but the clinoids in apposition, or a small sella with one or both clinoids eroded.

There are a number of conditions that enter into the question of why there should ever be a pathological enlargement of the gland. We know there is physiological enlargement at the menstrual period and during pregnancy. Other glandular disturbances, too, influence the secretion of the pituitary such as thyroid or suprarenal disease and it is the opinion of Timme[1], that in this case there is a compensatory enlargement. An injury to the skull may be the stimulus to an altered secretion. I recently had such a case in a navy yard worker who fell from a scaffold and had a concussion of the brain. This man was a compensated pituitary case and the injury served as a stimulus to the gland, causing it to decompensate with the usual train of symptoms. The gland may be the seat of all kinds of tumors, cysts, etc., and frequently the first signs of a new growth in this region are systemic pituitary disturbances.

According to Pardee[2], this type of headache has three typical characteristics: its persistence, its location, and its response to glandular feeding. These patients will frequently tell you that their headache is in both temples, deep within the skull. It may be in the frontal region behind the eyes or, if of long standing, the most severe pain may be on the top of the head or in the occipital region. Some have headache every day, others once or twice a week. The pain lasts from one to twenty-four hours and at its height there is often nausea and vomiting. It is usually dull in character and described as "something in the skull." Eating sweets may precipitate an attack. A headache may sometimes be foretold by an uncontrollable desire for sweets and when this desire is satisfied by eating large quantities, an attack generally follows. These patients as a rule are sluggish, have no ambition and usually have a lowered blood pressure. This is due to a harmone between the suprarenals and the pituitary. Both are concerned in the metabolism of sugar; therefore the disturbed pituitary must call on the adrenals to help out in the struggle.

In examining these patients one sees a peculiar distribution of body hair. There is either an abundance of hair or it is very scant. In the female there is male distribution of pubic hair and vice versa if the patient is a male. The eyebrows are long, heavy and meeting in the midline forming a nasal eyebrow, or are very scant. The female may have a well marked mustache and a tendency toward a beard. The male has very little beard, shaving only once or twice a month. The skin is

*Read at the twenty-fifth annual session of the Seaboard Medical Association, at Elizabeth City, N. C., December 7-9, 1920.

smooth and soft. The bones may be too long or too short and there frequently is a marked disproportion between the body and the lower limbs. The upper central incisor teeth are usually widely spaced and broad and the lateral incisors are frequently rudimentary. Some of the patients are quite fat and give a history of increasing in weight rapidly. Sugar tolerance is normal or increased. Blood sugar, of course, runs parallel with sugar tolerance.

I do not know of any disease where treatment is so gratifying as in the majority of headaches due to an altered secretion of the hypophysis. The feeding of pituitary extract will, in short time, decrease the headache, the nausea and vomiting will disappear, and the patient will be more comfortable. I usually start the treatment with two grains of the whole gland three times a day, given between meals. It has been my practice to use Burroughs and Welcome product, but any preparation is satisfactory if its freshness can be assured. Pituitary extract has not been standardized, therefore the strength varies according to the brand selected for use. Six grains daily (B. & W.) will be sufficient for the average case but larger doses may be employed if necessary. I have several cases that took sixty grains daily (B. & W.) for some time without ill effect. Blood pressure readings should be made frequently, as occasionally the pressure will increase. After the case has improved the dose should be decreased so as to give the gland a chance to readjust itself. According to Timme[3], there are a certain number of cases that will cure themselves, as is shown in acromegalics without symptoms.

During the past year I have seen a number of patients whose sole or chief complaint was headache. In eleven of these cases I have traced the complaint to a pituitary origin. All cases showing positive Wassermanns, urinary findings indicating nephritis, and reflex cases such as pelvic disease in women, have been eliminated. All cases with any associated disease that could possibly have a bearing on the headache are not included. Some of these cases had other complaints, for instance, convulsive attacks or diabetes insipidus, but all of them had headache. Of eleven cases, seven occurred in the female and four in the male. Seven had very small sellas closed in by the clinoids and four had sellas normal in size but the clinoids enclosed the fossa. Six had headache every day, three every two or three days, and two once a month. One case had been troubled with headache since he could remember; the others from six months to seven years. In eight cases the headache disappeared entirely or has been greatly relieved, two cases of long standing have not been benefited in the slightest, and one case has not been heard from in several months.

The following are the cases in brief. Only positive findings have been enumerated.

Case A. Female, age 40, complains of a pain in front part of head, radiating to the occiput, convulsive attacks, feels sluggish and has no energy. The skin is dry and the hair is brittle. Thyroid is palpable. Blood pressure is 100 systolic. X-ray of the sella shows a small fossa with the clinoids in apposition. The headache and sluggish feeling have disappeared and she has not had a convulsion since beginning treatment four months ago.

Case B. Female, age 31. Sole complaint is a dull bitemporal headache of three years' duration. The pain is severe at times so that the patient is confined to bed and has had morphine for the pain. The blood pressure is 120 systolic and 85 diastolic. The sella is of fair size but the clinoids almost bridge over the fossa. Has been under treatment since March, with complete relief of headache except just before her menses.

Case C. Female, age 16, complains of a heavy feeling in her head and is weak and sluggish. Is backward in school and the mother says has never been able to learn like other children. There is no body hair and the eyebrows are scant. The teeth are typical pituitary. The blood pressure is 120 systolic and 70 diastolic. The sella is very small and shallow and the clinoids are encroaching on the fossa. Has been under treatment since July, with relief from headache and marked improvement both mentally and physically.

Case D. Female, age 32, complains of bitemporal headache and occipital headache, dizziness, and is constantly tired and sluggish. Her weight is 218 pounds. The blood pressure is 148 systolic and 85 diastolic. The sella turcica is of good size but the clinoids are in apposition. Has been under treatment since June, with marked improvement in the headache except just before her periods.

Case E. Female, age 29, complains of bitemporal headache and polyuria. Blood pres-

sure is 140 systolic and 95 diastolic. Sella is smaller than normal, although not markedly contracted. Has been under treatment since August with relief from headache and a marked improvement in the polyuria.

Case F. Female, age 15, complains of convulsive attacks, and a bitemporal headache which radiates to the back of the head and neck. The blood pressure is 85 systolic and 60 diastolic. X-ray of the sella turcica shows a small fossa bridged over by the clinoids. Under treatment since June, with complete relief from headaches.

Case G. Male, age 35, complains of frontal and bitemporal headache. Is very tall and gives history of suddenly starting to grow. Female distribution of pubic hair and an absence of hair on the chest. The blood pressure is 136 systolic and 90 diastolic. X-ray shows a small pituitary fossa with encroaching clinoids. Under treatment two months without any change whatever in headaches.

Case H. Male, age 22, complains of convulsive attacks and headaches which are bitemporal and frontal. Slightly enlarged thyroid. Female distribution of hair. Blood pressure is 114 systolic and 60 diastolic. The sella turcica is of good size but the clinoids are closer together than occurs normally. Under treatment since August, with complete relief from headache.

Case I. Female, age 24, complains of frontal headaches and periods of depression. The thyroid is enlarged. The body hair is rather scant. Blood pressure 114 systolic and 78 diastolic. The sella turcica is small and almost enclosed by the clinoids. Under treatment since July, with complete relief from headache and a marked improvement in her depressed state.

Case J. Male, age 30, complains of a frontal and bitemporal headache which radiates to the back of the head. The blood pressure is 118 systolic and 70 diastolic. The body hair tends toward female distribution. The sella is very small and shallow and the clinoids practically touch one another. Has been under treatment two months with no relief.

Conclusions.

1. There is a certain type of headache due to an altered secretion of the pituitary which causes a swelling of the gland.

2. This type of headache is located in the frontal region or between the temples and occurs in patients showing pituitary signs.

3. In practically all cases of pituitary headache some alteration of the contour of the sella turcica will be found.

4. The majority of pituitary headaches will be cured by the proper administration of pituitary extract.

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ARTIFICIAL FEEDING OF INFANTS.*

By DWIGHT RIVERS, M. D., Lynchburg, Va.

The inability of some women to nurse their young is usually thought of as one of the evils of the modern times, but the occasional reference in the Bible and in writing of many of the old authors shows us that even in this period the children had the same fight for existence as at the present time.

In the beginning of artificial feeding of infants, horns were used for bottles with a sponge or perforated piece of leather for a nipple. This would hardly be considered giving the child a fair chance with our present knowledge of infant feeding. The old writers tell us that many mothers did not nurse their young, but they do not say whether they could not or would not. However, the result so far as the child is concerned was the same as now; but the chance for saving the life of the child is much greater at the present time.

The means of feeding children who are deprived of their natural food has always been carried on in one of the two ways. The first, and the one most in use up to the middle of the last century, was the employment of a wet nurse. The second, and the one most in vogue at the present time, especially in this country, is the milk of some domesticated animal. In America the cow is almost universally used.

It would seem that the question would be solved more easily by the employment of wet nurses, but the reason for the change from this method of feeding to the present is the class from which we are compelled to select the nurse. This is true more in America than in

*Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

some of the foreign countries where they have a sturdy peasant class from which to draw the nurse; then, too, from an economic standpoint, the milk of some other animal is more practical, as many of the patients are unable to pay a wet nurse. Another objection to the wet nurse is that a change of their mode of living is necessitated when taken from a home of, at best, only moderate circumstances to one of greater luxury, and probably from a very active life to one of comparative ease, which serves to enrich the milk supply to such an extent that there is danger of causing digestive derangement in the patient. Another criticism of this method is the possibility of disease in the nurse, as tuberculosis and syphilis; but, if we can obtain a healthy woman who is satisfactory, there are many lives which can be saved by this method of feeding.

Until the beginning of the nineteenth century, the wet nurse was the principal means of feeding the unfortunate infants. It was not until the middle of the last century that anything which could be called scientific was developed from the very crude and empirical methods formerly in vogue.

The real aim in feeding infants is to cause the child to pass from the period of infancy to that of childhood with a normal development, both mental and physical. To do this it is essential to have the proper amount of food. This applies to quantity as well as to quality. The amount of food necessary to cause the infant to have normal development has always been a subject for discussion among pediatricians and the present time is no exception to the rule, and even now the greater part of feeding is done empirically.

In the breast-fed child, the amount of food is usually regulated by the hunger of the child, but in the artificially fed child this is in most cases a very unsafe plan to follow. In breast feeding, if the child takes more than it needs it is regurgitated with a greater volume to the stool and possibly some undigested food, but there are no untoward symptoms. In the artificially fed child who receives too much food there is likely to be vomiting and diarrhea, rather than simply regurgitation. Such a condition can usually be traced to one of the components of the food.

THE PROTEINS:—In studying the later works on infant feeding, we see the proteins making a change from the food more or less dangerous, or as the real etiological factor of summer diarrhea, to the present belief that a high protein diet should be given in the same condition and, at the present, a greater part of the trouble is thought to be caused by fats and carbohydrates rather than by proteins.

The recent investigators have demonstrated the fact that all higher animal life requires protein known as complete. By this we mean a protein yielding all the amino acids necessary for animal life; also, it must contain in the form of salts, calcium, magnesium, sodium, potassium, iron, chlorine, iodine, phosphorus and sulphur. Cow's milk contains about three times the amount of proteins as does woman's milk. Not only this, but in cow's milk the casein constitutes about five-sixths of the total proteins, and the whey proteins, lacto-albumen and lacto-globulin, one-sixth; while in woman's milk the total proteins are not only one-third that of cow's milk, but the whey proteins comprise two-thirds while the casein is only one-third of the total.

The proteins of cow's milk, as in woman's milk, are first converted into peptones and finally into amino acids; nitrogen retention in infants taking cow's milk is quite normal and examination of the stools shows very little evidence of their not being thoroughly digested, so it seems that the proteins of the cow's milk are assimilated by the healthy infant as well as are those of woman's milk.

The more compact curd formed in the infant's stomach when taking cow's milk is probably due to the physical properties of the milk. The casein is an unstaple colloid held in solution by the lacto-albumen (Alexander and Bullowa) so, from the small amount of lacto-albumen in cow's milk, we would expect a more compact mass to be formed. This coagulum may be partially or entirely prevented in various ways, as greater dilution, or dilution with some mucilaginous substance, as oatmeal gruel, by boiling or by the addition of one of the earthy salts, as sodium citrate. From the above, apparently cow's milk proteins are digested and absorbed as readily as are those from woman's milk; but Howland has asked the question, "Is there a possibility that the greater amount of proteins, two, three or four times the amount that the breast infant receives, is injurious to the eliminating organs or does it injure the organs, converting them into a form to be eliminated?"

Protein is in excess as has been shown by calorimetric experiments to increase the heat production. This was shown on two infants, in one of which the heat production was raised ten per cent, while in the other it was raised 26%. The proteins of their decomposition products may act as a stimulus to the metabolism of other food products. Normally, the child may take care of this extra heat, but with excessive atmospheric temperature and high humidity and possibly other factors to prevent heat elimination, it is obvious that the extra amount of heat may cause trouble. Hoobler's data for the elimination of proteins is:—

Percentage absorbed 96.1%
Percentage passed (urine and feces).. 67.6%
Percentage retained 32.4%

The part eliminated in urine is in the form of urea, 45.4%. The remaining is ammonia, amino acids and creatinin.

The proteins serve three purposes; first, they replace that used up by the wear and tear of the body tissues; second, a small part is used for energy; third, the remainder, possibly 50%, is used for growth. Just how much protein is absolutely essential for the need of the body has not been definitely determined, but the amount in woman's milk is certainly not far wrong. The proteins taken by the infant, per kilo of body weight, are approximately doubled during the first year. We must bear in mind that proteins are indispensable to development and especially to muscular development. They also form a minor part in metabolism as is shown by the fact that the child will not grow even though his proteins could be increased to furnish caloric requirements.

Holt and Levine fed children on a synthetic food, exceptionally rich in proteins. After five or six days the children developed a fever which lasted as long as the high proteins were continued, but immediately subsided on the withdrawal of the food.

The Fats:—The belief that fats are essential to the infant's welfare is unanimous. If from nutritional disturbance or any cause the child cannot take fats, it will not thrive.

The high fat percentage in human milk suggests that fat is necessary for the young child, but the difficulty comes in supplying this amount to the artificially fed child, as the fat of cow's milk is not taken by the average infant in the same amount as is supplied in woman's milk without considerable risk of the digestive disturbance. This is thought by some to be due to the volatile fatty acids which are very much higher in the fat of the cow's milk, eight times as much (Holt). The freshness of the milk may also have a role to play in this condition.

The fats should not be increased to the extent that the child shows symptoms of intolerance, as this is the most persistent of any form of food intolerance and compels the reduction of fat to such an extent that the child cannot grow, and this intolerance may continue almost indefinitely. Some children will take a high percentage of fat for sometime, possibly several weeks, and apparently thrive, when for some cause, possibly no more than acute rhinitis, the tolerance gives way and the patient loses all that it has previously gained.

Fats so retard the emptying of the stomach that stagnation occurs at times and, with a high fat percentage and short intervals, there is an accumulation of fats in the stomach, so that in extreme cases the greater part of the fats given through the day may be obtained at the end of a day by the stomach tube.

Though there is a fat splitting ferment in the stomach (Sedgwick), practically all the fats are split in the small intestine and normally no more than one per cent escapes.

It may be said that forty per cent of the stool of the infant normally consists of fat, ten per cent neutral fat, ten per cent soluble soaps and fatty acids, and the remainder insoluble soaps. The latter, together with the absorption of fats, are greatly influenced by circumstances, as normally ninety per cent of fats are absorbed while in the case of diarrhea there may be less than fifty per cent.

One of the most discussed conditions caused by fat is one described by Czerny. In this the child is fat but sallow, his muscles are flabby, he is pale, gains slowly, and finally not at all. The stools are large, dry, light colored with offensive odor. To decrease the milk and add carbohydrates, as cereal or sugar, will usually show a marked improvement in the child. Some (Usuki) claim that this is due to a lack of carbohydrates rather than to excessive fats, and that the soap stools only occur when the carbohydrates are reduced as much as fifty per cent. The fat absorption is not interfered with to such an extent as to cause the clinical condition. The probable cause is in the min-

eral metabolism. Bahrdt has shown that more calcium is passed in the stool than can be accounted for by the combining powers of the fatty acids, but could not determine in what form the calcium was lost. It may be possible that this is the cause of the poor condition of the infant. For the soap stools to form, there must be present fat and calcium, also proteins to cause putrefaction; but as Meyer has shown, putrefaction will not take place in the presence of fermentation. It is evident that besides the calcium, fat and proteins, there must also be a lack of carbohydrates to prevent fermentation. This condition can be cured by the addition of carbohydrates with no reduction in other ingredients of the food.

In the case of the child who has been overfed on fats, there is likely to result a diarrhea and vomiting. Langstein and Meyer have shown that in this class of cases there is an excess of the lower fatty acids in the stools and these acids by their irritative action on the intestinal tract have to do with the increased peristalsis. During the diarrhea there is a loss of alkalies which would normally act to neutralize the acids formed by the metabolic processes of the body. So, by this loss of basis, there really exists a relative acidosis. There may be either a loss of sodium and potassium and retained calcium and magnesia or vice versa. In the fat stools, the fat is present in large amount and can be readily detected microscopically. When stools like this are present, it is a good indication of a functional disturbance of fat digestion. The result of over feeding of fat is shown by the onset of fever, vomiting, diarrhea and convulsions and is obviously a very serious condition.

Carbohydrates:—To this part of the food is given a great deal of the credit for the digestive disturbance which was formerly laid at the door of the proteins and fats, but at the present the latter foods are to a great extent disregarded and the principal attack is made on the carbohydrates. Lactase is present in early infancy and has been demonstrated in premature infants. Saccharose is not absorbed as saccharose but is split by invertase into dextrose and levulose. Maltose is partially absorbed without the action of digestive ferments.

Lactose, as it is the sugar found in mother's milk, would seem to be the sugar of choice for artificial feeding, but there are some cases where this is probably not true. Lactose is more laxative than either of the ethero disaccharids and for this reason is not indicated when there exists a tendency to diarrhea. Cane sugar is less laxative than milk sugar. Lactose is not so readily broken down in the stomach. Maltose for normal children has some advantages. It may be partly absorbed as such; then too it is broken down, both in the stomach and the intestine and for these reasons it should be the one of choice but, if a diarrheal tendency exists, it is obvious for the same reason that we should not prescribe it as a matter of choice.

In some cases where a large amount of sugar is desired for any cause, it is advantageous to use a combination. This is true when we wish the child to make a rapid gain in weight as in case of athrepsia; and again the infant is very dependent on carbohydrates and it is especially advantageous for this reason for him to take the normal amount as soon as possible. Again, the child derives a great amount of his energy from carbohydrates. The infant may exist for a time with a minimum of carbohydrates, but this is a great disadvantage to the child and, with a complete sugar intolerance, recovery is not likely to occur. In the normal child the tolerance for sugar is very high, while in the sick premature or eczematous child, sugar may be excreted even with a very small intake. This is usually in the form of lactose or galactose. The limit of tolerance for lactose and saccharose is about the same, while that for maltose is higher, probably due to the fact that it can be burned after passing the intestinal wall. For the normal child, either one of the above mentioned sugars may be used with comparative safety but, if digestive disturbances occur, it is better to withdraw all carbohydrates.

The Salts:—Sodium and potassium are respectively five and two and one-half times greater in cow's milk than in woman's, though the salts of woman's milk are in excess of the requirements of the child with the exception of iron, which is just sufficient in woman's milk, while in cow's milk the supply is insufficient. To meet this deficiency, the artificially fed child draws on its reserve supply in the liver until this has become exhausted. Then there is liable to develop a so-called "Milk Anemia," provided the proper amount of iron is not furnished in some other food. The fact

that cow's milk contains a greater amount of salts is of no advantage to the child, as the absorption of calcium from cow's milk is not so good as from mother's milk. The excess is principally eliminated through the digestive tract.

THE VITAMINES:—Besides the proteins, sugar, fat and salts of milk, there is a substance of unknown chemical nature named by Funk "Vitamines." There is a difference of opinion as to the number of these substances. There are two called by McCallum, fat soluble A and water soluble B. The lack of the fat soluble A causes xerophthalmia. The lack of the water soluble B will produce the condition known as beriberi.

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A FEW FUNDAMENTAL FACTS.*

By CYRUS THOMPSON, M. D., Jacksonville, N. C.

A month ago when the the Secretary asked me for the subject of the President's address, I replied to him that I had neither address nor subject for one, and that if he must print a subject in the program he could allow me the latitude of "A Few Fundamental Facts," a very wise because safe provision in a state of unpreparedness, since under that caption I might find abundant grazing in many fields.

The few fundamental facts to which, however, I am proceeding to direct your attention are sociological rather than medical; and for this predicament in a time of world-wide unrest and civil turbulence I am in no mood to apologize to an audience of men who are primarily foremost citizens and after that followers of one particular vocation. For what should interest the thoughtful in any calling more than men and communities of men and how they live their lives together? Nothing interests me more than human governments and the varying civilizations founded upon them. Considering man in his natural state, nothing seems to me more wonderful than orderly government and progressive society. Until these last few years, we unconsciously accepted these as matters of course. It never occurred to us that we might not be on an unbreakable upgrade of social progress to something higher than the world had ever known. Without being pessimistic, we now confess that we do not know how much of social ill, how much of degeneration and decay, the few years ahead may hold in cover for us. We may reasonably wonder if civilizations after all, like every other organic thing, do go through a definite cycle of being, and have their youth and prime and maturity, their old age and decay. This course is the natural history of men, units of civil life, cells as it were of the civil body. We live our time and make our contribution to our generation and then we die. The mortal unit lives immortal only in the undying race. Does the civil body at last fail of rejuvenation, grow old and die as these mortal units?

To this question, History answers yes—the history of Egypt and Assyria, of Athens and Rome, and of every uncovered dead field of the world; while Prophecy bright-eyed, unable thus far to gainsay it, but full of faith, nevertheless, looks smiling into the future and declares that it shall not always be so. If the sequence of this social cycle be accepted as hitherto a fundamental fact, the physician, given all his life to asking questions and seeking causes and applying remedies, should be the first to ask the reason why. In the face of dead civilizations it is up to him to inquire and to assign the cause of death.

That adopted German now hibernating in neutral Holland doubtless believes that the saving culture of successive increasing civilizations went the way of all the earth because of the ungodly uprising of the democratic herd against divinely constituted authority and order; the democratic peoples of the world, on the contrary, would assign autocracy with its syndrome as the fatal malady; a neutral, doubting, might shake his head and ask, "Is democracy all bad and autocracy all good,—is autocrary all bad and democracy all good?"

Perhaps we have believed that democracy is all good and that what the world and our civilization needs for perfection is more and fuller democracy. We have desired and striven against autocracy to "make the world safe for democracy." When we have overthrown autocracy and made the world safe for democracy, we are now confronted with the larger task of making democracy safe for the world. In relation to the problem of human progress, no fact is more fundamental than this, and he is not wise who fails to face and consider it.

For no betterment or progress is possible except on the foundation of intelligence. Are

*President's address before Seaboard Medical Association of Virginia and North Carolina, at Elizabeth City, N. C., December 7, 1920.

the masses in any land intelligent enough to preserve the best that they have and to build on it something better? Turn the world over to them and what will they do with it? If the masses had the head, have they the necessary heart also ? The masses of men think of the things of today, not the things of tomorrow. Progress is born of foresight and civilization proceeds out of the few with head and heart, who, not unmindful of today, set their gaze in the face of the coming time. These are the men who must lead the masses, save the world, and lift up the race from generation to generation. And the world, for the sake of the masses, must be made safe for them. These few save the world; for salvation is not a question of governmental form or numbers in power—salvation is a question of horizon.

Clamorous for power and assertive of rights, what do the masses know of duty and obligation, what of making straight the long way ahead? They confess their unfitness for rule in their adoration of leaders—without whose guiding hand they are as sheep without a shepherd. And in any democracy, whatever of freedom is obtained and preserved for men, whatever of progressive development is attained by them, comes not of themselves but of the few philanthropic souls who have vision and follow ideals, men who can let go the immediate and labor and wait for the ultimate good. These are men who are not content only to make a living, but must needs learn how to live themselves and to teach and lift up the race of men with them. They are men of faith and hope and charity, who, equating with their environment, clutch the hem of the garment of the highest; intelligent of head and benign of heart, they take care of themselves and set the lower upon a higher plane. They advance civilization in the logical process of human evolution. For we must conceive of social progress as of evolution in every organism: it is made only as the higher faculties gain control and direction of the lower.

This statement we may claim as another of our fundamental facts. If proof were needed, let me ask what great popular good has come about in any other way? Tell me the origin of our great charitable institutions for the blind and the deaf and dumb and the insane. The multitudes did not father them. Virginia and North Carolina began some provision for the care of the feeble-minded only at the instance of this Society. Whence originated our system of public education, without which democracy would be a pitiable farce if it were not a cruel tragedy? And whence the medical inspection and care of school children, the democratic rulers of on-coming generations; and, indeed, our whole system of public health work and preventive medicine? These last are not wholly acquiesced in by all medical men even now; for candor compels me even in my mood of professional self-gratulation to admit that not all doctors have horizons beyond pay-day: and some ask of every advance, "How will this affect me in dollars," to say nothing of cents? It was Cain who scowled in the face of the Infinite and snarled, "Am I my brother's keeper?" The progeny of Cain are selfish, but not wisely so. They feel nothing of sentiment and know nothing of the joy of service. The alabaster box of ointment could always be sold for three hundred pence and given to the poor, say those who fall under the supremacy of their lowest powers.

If democracy is to be safe for the world, it must be safe for the best and highest, the most efficient in it; it must be a strong and intelligent democracy; and every wise man of today must endeavor to make it increasingly so for tomorrow. For efficiency and intelligence, like Juno's swans, wherever they go, go coupled and inseparable.

The mental unfitness of the masses to rule is the discovery of medical men. Oh! the politicians knew it, of course, and statesmen knew it; but the politicians said nothing about it. And what can a statesman say in the face of a politician? Fit and unfit are voters, and the politician, a man of short horizon, looks only for votes on election day. Getting these, his aim is attained and he is satisfied. If one-third of the drafted men were found physically and mentally unfit for military service, forty-five per cent. of 1,700,000 men accepted by the Local Boards and sent to the camps were found to be below the average in mentality,—in intelligence as distinguished from mere knowledge. In other words, if a man's intelligence is mature at eighteen or nineteen years of age, four and one-half per cent. were of normal grade; nine per cent. were of the mental age of sixteen or seventeen; sixteen and one-half per cent. were of the age of fifteen;

and twenty-five per cent. corresponded to the normal thirteen and fourteen year intelligence; and forty-five per cent. were of the ten to twelve year grade. The high officers had to come from four or five per cent. of the men, and the highest thirty per cent must furnish all commissioned officers for the conduct of the war, while seventy per cent. of the men furnished some non-commissioned officers and made up the private ranks. These Army Ratings by medical men give us a fair comprehension of the intelligence of the mass of democratic American men. America saved civilization, they say, and covered herself with imperishable glory—that the world may be ruled by the like of these.

You may not, however, practice medicine or surgery or pharmacy or dentistry, or law, or teach school, or run an engine, or pilot a boat on a river, until you have given reasonable evidence of your fitness for the work. But if you are twenty-one years of age, male or female now, you are not only permitted but earnestly besought biennially to set your hand to and tinker with the most complex and necessary engine of all with the freedom of a master engineer—because it has been declared that all men are created free and equal—then why should we discriminate?—and that they have an inalienable right to life, liberty and the pursuit of happiness; and that all just powers of government are derived from the consent of the governed. It was Elbert Hubbard, poor Philistine, who said "T' ell with your wheel-barrow; what do you know about machinery?"

Perhaps it would be a little brash to say that these time-honored Jeffersonisms are not fundamental facts. I suspect, however, it would be only formal for me to hold them as such without reservations and interpretations. To the extent that no man may be another man's slave but may enjoy the fruit of his own labor, we may say that all men are created free; and they are equal in that there may be no discrimination in punishments imposed or burdens to be borne. All men have right to life, liberty and the pursuit of happiness only upon very severe conditions. These rights are inalienable only when exercised and enjoyed in the promotion of the common good. The individual may not always pursue happiness in his own way. The State is greater than the individual, and may for its welfare take away life and deprive of liberty and define in what manner happiness shall be pursued.

The just powers of government should be founded on the consent of the governed when one nation seeks to govern another. But the just powers of government are hardly derived from the consent of the governed when the governed are individuals in a governing nation. Notwithstanding this hoary declaration, we now govern the Philippines: and the contrary doctrine was established over fifty years ago in the face of sovereign American States. We are far enough removed from the War between the States to see the wisdom of an undivided America and be proud of an indissoluble union. Society has the right to protect itself: no so-called personal right can prevail before social well-being. The State is greater than the individual and the greater will take precedence of the less. Society has the right, furthermore, not only to protect itself for the present, but to take present action for its further development.

That form of government is best for a man which is best suited to develop the best possible in him. That social order is best which fits most men to live on a higher level. Any form is valuable in proportion to its adequacy to broaden and deepen men's lives, to build in them character, courage and helpful efficiency.

I cannot get rid of the notion as a fundamental fact that the government of the family, when fortunately such government exists, is the type of all just government. The purpose of government is the protection, development and welfare of the governed, who are unable to protect themselves, to perfect their development and make secure their own well-being. The consent of the children is not asked by the parents, and the immature are not consulted as to what shall be done. Authority is not derived from the children but inheres in the head of the family because of them. The exercise of authority is the just expression of parental obligation. The just powers of government, therefore, are derived not from the consent of the immature and incapable who are governed, but arise out of the obligation which the philanthropic greater inalienably owes to the less for the protection of himself and the protection and development of the less up to his own higher level. Following this line,

I see that the world should be made safe for democracy, and that democracy could eventually be made safe for the world.

Imagine, on the contrary, a family wherein the parents are so democratic (and there are too many such) that there is no government until the children first consent to be governed, and where every policy to be pursued in the household or thing to be done is decided by vote of the family electorate, the vote of the youngest counting one as the vote of the maturest or the heads of the household. You no sooner see the picture thus limned than you exclaim, "What fools!" It is the picture of a democracy of free and equal citizens of all mental grades, the just powers of government being derived from the consent of the governed. For the masses of men are but children, incapable of self-guidance and protection and development into the full stature of men. They are incapable of defense in time of war, and they are not more capable of growth in time of peace. Is even the average man capable? What then of the lower? And there are as many below the average as above it; what of the forty-five per cent. below? They count as fully as those above it. The seventy millions are more than the thirty millions. The eighty-six millions are more than the fourteen millions. Shall the government be turned over in the name of democracy to the less intelligent because of their numbers, or guided by the few because of their intelligence and their ability to care for both the wise and the foolish?

There is enough of intelligence in every nation to save it if the intelligent were in control. But everywhere, and increasingly so, in this turbulent world, the power is with the numbers. The masses are taking things in their own hands the world over. What use will they make of their numerical strength? The answer to that question will depend upon the character of the men who lead them. For they will have leaders. The most democratic government in the world must needs express itself as an aristocracy. Whatever the character of the leaders whom the masses choose, the intelligence of the leaders will be higher than their own. For the lower intelligence always looks up to and follows a higher. A king among the blind must be at least a one-eyed man. And the leaders of whatever sort will have the confidence and so the control of their followers.

But how can confidence in leadership be inspired in these unintelligent but yearning democratic masses? Not by superior intelligence alone, but by superior intelligence coupled with humanity. The safe and efficient leader must have the wisdom of the father with the love of the mother. Having these, he would control, direct and lift up to safety the turbulent adolescence of this vast human family. Selfish leadership may come, but it betrays itself and is short-lived; an unselfish leadership declares itself in the character of its purpose, the beneficence of its results, and the length of its peaceful days.

What, especially in a time like this, therefore, is the prime business, the plain duty, the bounden obligation of the four millions, the fourteen millions of our American population? Is it to count the world and the fullness of it their own, and all God's children as made but for them? To plunder and pillage and profiteer as fools? For a little while they may lay up "much goods for many years," but their souls cannot take their ease, and eat and drink and be merry for long. Not now—It was a blind Samson who said "Let me die with the Philistines! And he bowed himself with all his might: And the house fell upon the lords and upon all the people that were therein."

"In all ages," it has been said, "the man whose determinations are swayed by reference to the most distant end has been held to possess the highest intelligence. The tramp who lives from hour to hour; the Bohemian whose engagements are from day to day; the bachelor who builds for a single life; the father who acts for another generation; the patriot who thinks of a whole community and many generations; and finally the philosopher and saint whose cares are for humanity and eternity—these range themselves in an unbroken hierarchy."

The plain duty, the prime business, the bounden obligation of the most intelligent in the nation is to take control of the less intelligent, to gain their confidence through a busy manifestation of that sublime quality of human service which in these later years in some degree has been evidenced in so many ways. This is their reasonable service. It is the exemplification of a very old formula, not timeworn, but eternal as the ages. They may so make the world safe for democracy and democracy safe for themselves and the world.

For the divine purpose hitherto manifest in the progress of human evolution must be the betterment of the condition of the masses of men, the making of a race of happier and nobler men. In their human sense, this fundamental fact lies deep as a racial conviction. This conviction may be appealed to and directed, but it cannot be swept aside or obscured. It must be wisely and humanely met. For whatever your views may be, men must be dealt with as they are and not as you would have them. This fact is fundamental. If society, therefore, is not what it should be, if orderly government and civilization are in danger, the fault lies not with the masses struggling blindly toward the day, but with you and me,—if you and I are on the higher plane.

I love to think of the doctor as the most self-sacrificing, the most humane, the most serviceable and, therefore, the most intelligent man in his community—full of reasonableness, public spirit, and sweet charity; for which reason I make no apology for the scope of this brief address.

A STATISTICAL REPORT ON THE INCIDENCE OF CONGENITAL SYPHILIS.*

By LAWRENCE T. ROYSTER, M. D., Norfolk, Va.

In January, 1919, the King's Daughters' Children's Clinic began taking a routine Wassermann of all children who were brought to the clinic for treatment of any kind. The Wassermanns were made by three different laboratories, but a large majority were made in one laboratory, by one person†.

The object of this paper is to make a statistical report of the first thousand Wassermanns taken.

TABLE I. RACE INCIDENCE.

Colored	659
White	341
Total	1,000

TABLE II. PERCENTAGES.

Positive, 125.
Percentage of positives, 12.5.
Colored positives 101, or 15.47%.
White positives 24, or 7.04%.

TABLE III. AGES.

Youngest	1 mo.
Oldest	15 yrs.
Under 12 mos.	35
1 to 5 yrs.	15
5 yrs. and up	75

TABLE IV. PRESENTING CAUSE.

Swollen knee	1	Swollen cheek	1
Injuries	3	Nausea	1
Circumcision	1	Sore mouth	1
Skin eruptions	5	Glands of neck	1
Poor School work.	2	Syphilis	1
Delinquency	2	Inflamed eyes	1
Pain in chest & back.	1	Painful micturition.	1
Enuresis	1	Discharging ear	1
Indigestion	1	Defective vision	7
General examination	7	Sore throat	6
Headache	5	Abscessed ankle	1
Ear ache	1	Whooping cough	1
Adenoids & tonsils	37	Feeding	42

This makes a total of 132, whereas, there were actually only 125 positive cases. The discrepancy of 7 is accounted for by the fact that where a child presented two conditions which did not appear to have any definite relation to each other, or to a common cause, they were tabulated separately.

TABLE V. CONDITION ON ADMISSION.

Of the 35 under 12 mos. the condition on admission as described by the examining physician was as follows:

Good	7	Poor	18
Fair	6	Wretched	4

Of the 90 over 1 year the condition was described as:

Good	27	Poor	26
Fair	34	Wretched	3

DISCUSSION.

THE CLINIC is situated in Norfolk, a typical mid-southern city, with a population of 115,777 (not including suburbs) of which 75,256 or 65% are white and 40,521 or 35% are negroes. The city has a rather large foreign population. The Clinic draws from the city proper and a large circumjacent territory, and has affiliations with various other philanthropic bodies, which refer cases needing special attention. Among these may be mentioned: The Juvenile Court, for whom we make mental examinations; The Society for the Prevention of Cruelty to Children and Children's Aid; The Colored Day Nursery, for whom we direct the feeding of infants whose mothers are compelled to work, while many school children are referred by the medical inspectors and school nurses.

The attendance during 1919, including new cases and returns, was approximately 5,000,

*Read by title before the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

†The Wassermanns were by Dr. Mary E. Roche, Mrs. Maude Mansoni and Mr. H. G. Parker, the last of the Board of Health laboratory, who made most of the tests.

I am indebted to Miss Mabel Wing for the keeping of the records of this series.

while for the first eight months of 1920 there has been an average attendance of 600 per month.

Race Incidence.—Among physicians of the South there is a popular classification of negroes as regards syphilis to wit: "Those who have or those who will have." This study has shown at least that the incidence of syphilis among negroes is about twice as great as among the whites, certainly as far as congenital infection is concerned.

Cause of Presentation.—Merely as a matter of interesting detail a record was kept of the reason assigned by the parent or guardian for bringing each child to the clinic. A large number of these will be seen at a glance to bear no relation whatever to syphilis, while others are just as apparently of syphilitic origin. All of the cases of "skin eruption" were non-syphilitic. The cases of poor school work and delinquency (referred by the Juvenile Court) were apparently definitely related to the luetic infection. Some of the cases of headache were refractive in origin, while others were relieved only by specific treatment. All of the cases of "defective vision" were keratitis or choroiditis. Most of the "feeding cases" had syphilis as the underlying cause of malnutrition, a number being on an ample supply of breast milk. A few were apparently perfectly healthy. Most of the adenoid and tonsil cases presented no evidence of lues.

Physical Condition.—As shown in Table V, the luetic infection is reflected in the physical condition on admission, many cases classed as "fair" or "poor" showing no evidence of syphilis other than a mal-nourished or underdeveloped state. Of the 27 classed as "good," in the second division of Table V, a majority were in cases of enlarged tonsils referred to the clinic by the school nurses as needing tonsillectomy. Of the 7 classed as "wretched," 6 were marantic infants, and one, a girl of 5 years who had both syphilis and tuberculosis.

Clinical.—Unfortunately, on account of an insufficient number of physicians and nurses to keep the records complete during a part of the time covered in this report, there were a number of errors made in recording certain complications and specific manifestations. It is, therefore, impossible to tabulate the incidence of special symptoms. A generalization must suffice. As a rule, in early infancy marked malnutrition or marasmus was most frequently observed. This was particularly the case in breast fed babies; in fact, in almost every case in which a baby on an ample supply of breast milk was markedly undernourished, syphilis was the cause. Frequently this was the only manifestation. The buttocks of some of the marantic infants were excoriated from irritating diarrheal stools. The spleen and liver were frequently enlarged, but not with a degree of constancy which might be expected in syphilitic infants. The cases of epiphysitis were invariably in well developed and well nourished infants.

The special manifestations in older children were usually keratitis or choroiditis. Not one case in this series presented evidence of neurosyphilis. This is in striking contrast to the author's experience in private practice. There were four cases of typical Hutchinson's teeth; three were negroes and one white. Two presented the triad of deafness, keratitis and Hutchinson's teeth, while a third presented this triad with the addition of a "saddle" nose. There was not a single instance of "sabre" leg. Two cases of older boys exhibited such extreme ulceration as to lead to the suspicion of acquired lues.

Treatment.—Little can be said of the results of specific therapy at this time, since many of the cases are still under treatment. This will be made the subject of a subsequent report.

Taylor Building.

THE CARE AND TREATMENT OF PNEUMONIA.*

By F. C. RINKER, M. D., Norfolk, Va.

During the past few years and particularly during the epidemic of last year, there have been advances made in the treatment of pneumonia and I will endeavor to enumerate them as they have impressed me. I will avoid technicalities in so far as it is possible in order to make the methods used the more practical.

Pneumonia is due to infection of the lungs by the pneumococcus, streptococcus, or what we prefer to call the pneumococcus-streptococcus group. These organisms are commonly found in the nose and throat of healthy individuals and are prone to become virulent under certain circumstances.

The symptoms and physical signs of the dis-

*Read before the Southside Virginia Medical Society, at Victoria, Va.

ease are well known to us all. Death from pneumonia occurs as a result of circulatory failure which in turn is due to the existing toxemia or to dilatation of the right heart. The effects on the circulation are due to the pulmonary process.

The problem of treatment then may be divided into three parts:

1. The use of specific sera or specific drugs.
2. The care of the heart and circulation.
3. General measures directed toward the relief of toxemia.

Specific Treatment.—When sera were first being used for the treatment of infections and when tetanus and diphtheria fell under the ban of anti-toxic sera, it was hoped that pneumonia would be a close second in response to a specific serum. This hope was not realized until recently and then only in part. Within the past few years Cole has put the serum treatment of pneumonia on what seems to be the beginning of a sound basis. Unfortunately, the process and methods proposed by him are too cumbersome to be carried out without the aid of a well equipped and well run laboratory.

The following is a brief abstract of the method recommended by Cole: "In the first place, pneumonia as diagnosed by the clinician is not the result of an infection due to identical micro-organisms. It has been discovered that pneumococci can be divided into two groups which have different characteristics; then again about five per cent. of the cases diagnosed as pneumonia are due to some other form of infection, such as the staphylococcus, streptococcus or Friedlaender bacillus. In order to identify the different groups of pneumococci the following method is used:

A small specimen of the sputum from the pneumonia patient is injected into the peritoneal cavity of a mouse. After the micro-organisms have developed, the peritoneal cavity is washed out with salt solution and the washing is centrifuged to remove cells and leucocytes. To a small portion of the suspension immune sera of types 1 and 2 are added. If agglutination occurs in either mixture we then know that we are dealing with the type of micro-organism corresponding to that particular serum. If no agglutination occurs, we are then dealing with either types 3 or 4.

Cole has found that pneumococci group themselves into four types according to morphological and microscopical peculiarities, of which types one and two produce in animals a protective serum and types three and four do not. Unfortunately, type three has the highest mortality, it being forty-five per cent. Type one has a mortality of twenty-five per cent., type two twenty-nine per cent., and type four twelve per cent.

The serum treatment of type one has resulted in lowering the mortality of this group from twenty-five per cent. to eight per cent.

The serum for groups one and two are prepared from horses and can be obtained from the various houses which prepare sera.

The work of Cole is an advance, though only a small step, and should be put to use wherever it is possible. The work in itself is an argument in favor of our State Board laboratories being equipped so that they may give, in the shortest possible time, a grouping report on cases of pneumonia. All other sera used in the treatment of pneumonia have proven fruitless from the standpoint of specific treatment.

A large number of our pneumonia cases fall into groups three and four; for these we have no specific sera, and are, therefore, forced to fall back on the Non-Specific Treatment of which the care of the heart and circulation is most important. After a diagnosis of pneumonia has been made, the clinician's attention should at once be directed toward the patient's heart and circulation. The heart muscle is weakened by the toxemia resulting from infection and it has an increased amount of work to perform against increased resistance.

The objective findings indicating a failure of circulation are as follows:

1st:—Diminution in the intensity of the second pulmonic sound. (Remember the second pulmonic sound is normally accentuated in pneumonia and its character should be noted at every visit by the attending physician.) Whenever the intensity of this sound becomes weak, we should be on the lookout for cardiac dilatation and stimulation should be increased at once.

2nd:—Relation between the systolic blood pressure and the pulse rate. Every physician should keep a record daily of the systolic blood pressure and note its relation to the pulse rate. Normally, the systolic pressure estimated in m.m. of mercury is greater in

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number than the rate of the pulse. If the pressure should drop so that the pulse rate would be equal or greater than the systolic pressure, it would be an indication of failing circulation. This is the so-called Gibson rule.

3rd:—Irregularity and weakness of the pulse are indications of increased cardiac weakness.

4th:—Dilatation of the heart. No patient suffering from pneumonia should be treated without daily observation of the size of the heart with particular attention being paid to the right heart. This is easily done by a percussion which is an accurate method. Dilatation of the right heart is the most dreaded of all complications of pneumonia, for so long as the right heart performs her work, just so long will the patient live.

The methods and medicinal aids of meeting these symptoms of cardiac weakness will be enumerated later. Let me say here that it is my belief that many deaths from pneumonia have resulted because of failure to recognize these four cardinal signs of circulatory decompensation early enough.

This brings us to the question of General Care and Treatment, which in my opinion should be carried out as follows:

1st:—Fresh air. Not necessarily cold air, but air which is being constantly changed. It is advantageous to have a draught of air passing over the patient's face. A pneumonia patient has increase in respiration and, unless the air is being constantly changed in the direct vicinity of the nose and mouth, he is liable to re-breathe a portion of his exhaled, deoxygenated and infected air. The patient should, of course, be protected with clothing so that he will not become chilled. Fresh air allows a greater amount of oxygen to be used in the same space of time; it also tends to keep the mucous membrane of the nose and throat in a healthier condition. This brings us to the question of:—

2nd:—The care of the nose and throat. Pneumonia is probably a secondary infection resulting from a blood metastasis from infection in the nose and throat. Therefore, to keep the nose and throat in a healthy condition will certainly lessen toxemia and severity. In all cases it is beneficial to clean out the nares daily and, if necessary, shrink the turbinates with one per cent. cocaine solution in order to promote free drainage from the middle meati. Then have the nurse put two per cent. calomel in vaseline into each nostril three times daily.

3rd:—Relief of nervous symptoms. Low muttering delirium and rapid pulse are severe and annoying symptoms and call for prompt and vigorous treatment. Here, fresh air, tepid sponges and packs with mustard are helpful. In addition to these methods the use of morphine is indicated. Morphine may and should be used freely in these cases. It relieves the nervousness and it is beneficial to the circulation through its stimulating effect on the vagus nerve. It should be fortified with either atropine or strychnine in order to counteract the depressing effect upon respiration.

4th:—The intestinal tract. The bowels should be moved once daily by either enema or laxative. Abdominal distention is the result of the effects of toxemia on smooth muscle of the intestinal wall resulting in loss of muscle tone. This symptom is troublesome and embarrasses respiration. The most useful drugs to be used in combating abdominal distention are pituitrin given 1 c.c. doses by hypodermic injection or the salicylate of eserin used hypodermatically, grains 1/24. Turpentine stupes are helpful. A rectal tube may also be used, but is very disturbing to the patient as a rule.

Dilatation of the stomach is a more frequent complication of pneumonia than is supposed. It occurs late in the disease or just following a crisis. There is great distention of the abdomen in the epigastric region, the patient vomits large amounts of foul smelling material. The treatment is gastric lavage after which the patient should be placed on his right side; the fluid intake should be curtailed decidedly and eserin salicylate, grains 1/24, should be given hypodermically. The frequency of lavage depends upon the relief of symptoms. The condition usually disappears in a short time if treatment is instituted early.

5th:—The kidneys are put on heavy strain during pneumonia infection and should be watched very closely. Daily examination of the urine for albumen, blood and casts, should be done. In addition, have the nurse or a member of the family measure all of the fluids taken in by the patient every 24 hours and measure the twenty-four hour urine output. It is obvious that if the excretion of urine falls

below the amount of fluids ingested in 24 hours there must be some interference with kidney function, or there has been a sudden drop in blood pressure. When such a condition is noted, active catharsis and diaphoresis are indicated.

6th:—Blood letting should be done where there are evidences of a dilated right heart.

In conclusion, let me call attention to the uses of efficient DRUGS in the treatment of pneumonia. Do not use your ammunition until the condition of the patient calls for its use. Many a case of pneumonia recovers without the use of any medication whatever.

1st:—Digitalis. This drug is probably the most useful single drug in pneumonia, and may be begun early in the disease in order to give additional cardiac support. Recent authorities advise using a good tincture in moderate doses, using ten minims three times in the twenty-four hours. The dose may be increased in cases showing signs of cardiac failure. Or it may be given intravenously in cases which show signs of sudden collapse, with increased heart rate.

2nd:—Caffeine. The sodium benzoate given in two or three grain doses by hypodermic injection or by mouth every six to three hours is of value in cases of cardiac and respiratory embarrassment.

3rd:—Camphor in oil given in three grain doses hypodermically every three to one hours is probably the most valuable drug in cases of sudden circulatory failure. It is also useful in cases of gastric dilatation and in severe cases of hiccough.

4th:—Morphine should be used in all cases of restlessness and rapid pulse rate.

5th:—Atropine is of value especially in cases suffering from edema of the lungs and in cases of respiratory embarrassment. It is also of value in cases of hiccough.

6th:—Eserin salicylate and pituitrin are useful in gastro-intestinal symptoms.

7th:—Alcohol, I mention to condemn. In my opinion it has no place in the *routine* treatment of pneumonia, but should be used in cases of habitual users. The effects of alcohol on the heart are depressing and not stimulating.

8th:—Sodium-bicarbonate, if given in doses of grains 15 to 20 every four hours, will assist in combating infection and preventing acidosis.

Finally, constant watchfulness is most necessary in all cases of pneumonia. If possible, a trained nurse should be in attendance; a sudden delirium or a rapidly occurring cardiac failure may go on to the stage of danger if there is no one there to report these changes to the physician. The attending physician should visit the patient at least twice daily, whenever practical, and at each visit he should note the character of the second pulmonic sound, the character of the pulse, the size of the heart, the systolic blood pressure and the condition of the kidneys.

Sarah Leigh Clinic.

VALUE OF AUTOPSIES WITH REPORT OF CASES.*

By K. D. GRAVES, M. D., Roanoke, Va.

Although to the lay mind the idea of an autopsy is usually abhorrent and repulsive, still autopsies are the basis of most of our medical knowledge today.

Ever since the day of Hipprocrates, the constant desire of men in the medical profession has been for more knowledge as to the cause and course of disease. Not until fairly recently, however, has even limited opportunity been given to study the body after death. Many factors have entered into this state of affairs—first religious, then legal, and later, purely sentimental.

Autopsies may be obtained in three ways—by medico-legal means, by coercion, and by education of the public. The first is sometimes necessary, the second is practically never justified. The great need is for education of the public along this line. They must be taught that the body is merely the shell, the cocoon, of the real self; and that as the butterfly emerges from the cocoon, leaving only the crumpled shell behind, so the dead body represents in no way the real person.

Probably the most progressive step in this direction has been taken by the Health Department in asking the question on their death certificates, "Was an autopsy performed?" As soon as the general public realizes that broadly speaking, one of the best ways to learn the disease processes is to study them on the au-

*Read at the fifty-first annual meeting of the Medical Society of Virginia in Petersburg, October 26-29, 1920.

topsy table, the sooner universal autopsies will be granted. It is not necessary to be able to study the minute microscopic changes which take place in disease in order to perform an autopsy although this, of course, is of great advantage; the general practitioner, with a few simple instruments, can make observations and learn from the gross tissue changes facts which are bound to be useful to him in his work.

The words of the Great Teacher, "Seek and ye shall find," apply not only to what we are looking for, but oftentimes to the unexpected as well. To illustrate this point, I wish to report briefly, two cases.

Case 1.—Mrs. J. F. K., white, female, 28, married, the mother of three children. Started having headaches about December 27, which became very severe at times, especially in right occipital and mastoid region. Ear drum was punctured by her physician January 7, but no pus was found; however, ear started discharging freely two days later. On February 9 a spinal puncture was made for diagnostic purposes, the blood Wassermann having showed a doubtfully positive reaction. Fluid under marked pressure, cell count 160, globulin increased, and fluid gave a positive Wassermann reaction. X-ray examination showed marked increased density and cloudiness of right mastoid. Patient grew progressively worse, and died February 17. The diagnosis lay between cerebrospinal syphilis and brain abscess.

Autopsy revealed numerous subarachnoid pockets of pus containing hemolytic streptococci located in the horizontal fissure of Sylvius, both sides, fissure of Rolando, left side, anterior portion of temporal lobe left side, and in the region of the pituitary and infundibulum. Small amount of reddish serosanguineous fluid in right mastoid. Probable cause of death: Acute streptococcic meningitis with multiple brain abscesses; probably secondary to infection of right ear.

Case 2.—Mrs. M. J. A., white, female, age 58. Trouble began two years before admission to hospital, with flu. Had not been well since that time. Suffered with shortness of breath, dizziness, and swelling of feet and ankles, gradually growing weaker. In bed for last seven weeks. Patient was markedly emaciated, slight generalized venous engorgement. Heart: apex markedly diffuse, and having maximum impulse 1½ inches to right of right nipple, in 5th interspace. Left border of heart not determined. Presystolic thrill at apex. Action rapid but regular. Lungs: left, flatness, and absence of breath sounds and fremitus over entire left lung, except tubular breathing at extreme left apex. Right lung negative. Patient had been diagnosed T. B. of left lung, and had spent some time in Colorado prior to admission to the hospital. Diagnostic aspiration of chest showed brownish fluid; 30 c.c. was withdrawn and patient died on table from collapse.

Autopsy showed the left pleural cavity filled with brownish fluid, the lung being compressed to the extreme right of the apex, lying against the heart and pulmonary vessels, so misshapen as to be hardly recognizable, it being almost tubular in shape, about 3 cm. in diameter and 12 cm. in length. Diagnosis non-tubercular pleurisy with effusion following flu.

In conclusion, beg to say that in my judgment the need for educating the public regarding autopsies is very great, and the responsibility for this work lies chiefly with the family physician. If he lives up to this responsibility, great good will be accomplished, and many lives saved.

Medical Education

THE UNDERGRADUATE CURRICULUM.*

By FRANK BILLINGS, M. D., Chicago, Ill.

The character of the reports made yesterday and today by committees representing the fundamental and the clinical branches upon the principles and policies which should be followed in undergraduate and in graduate medical training, indicates the need of a decided modification in the curriculum of the medical school.

Specialism in the teaching of and in the practice of medicine has been permitted to warp our judgment and to divert us from the proper course to pursue in the attempt to educate and train the student of medicine.

There are not a sufficient number of efficiently trained general practitioners or of adequately trained specialists to meet the public need. We are all practically in agreement that primarily the student should be educated broadly and comprehensively so that he may

*Read at the annual conference on Medical Education, Licensure, Hospitals and Public Health, March 8, 1921.

be qualified to practice general medicine. If he is desirous of becoming an internist, a general surgeon or a specialist in one of the narrower fields of practice, he must have adequate postgraduate medical training to qualify him for the work.

Therefore, the chief product of the medical school should be the graduation of resourceful, broadly educated and well trained practitioners of medicine.

We may arrive at a better conception of what the education of the general practitioner should be if we consider what are the obligations and responsibilities of the general practitioner to the community he serves. In practice he is a family physician and in this, his chief role, he is responsible for the safe and sane treatment of the family in illness and injury. He counsels and advises the family upon all problems which confront it in relation to individual and general hygiene, public sanitation, education and community obligations and responsibilities. He must have a good general knowledge of the principles relating to epidemiology, immunology, sanitation, medical jurisprudence and sociology that he may act rationally when confronted with the problems which relate to the application of tried and proved measures of disease prevention for the protection and welfare of the multiplied families—the community for whom he is responsible. He must advise, guide and safeguard the expectant mother through gestation. He must so manage the labor that it will terminate within a reasonable time without instrumental interference and without serious injury to the mother and child. He must be able, when necessary, to meet the not frequent obstetrical emergencies and especially to recognize the serious complications at an early stage of labor so that consultation may be secured if he is not technically able to fully safeguard the two lives for which he has assumed responsibility. He must be able to give the best advice and management in the care of infants and children. This implies a knowledge of the underlying principles and also the actual personal contact and personal experience in a modern infant and child welfare clinic in a medical school training. He must understand the principles of psychology and of neuropsychiatry to enable him to recognize mental abnormalities in childhood and in adult life. For these mental conditions and their management and treatment he will usually not assume responsibility, but will direct the related responsible individuals to physicians qualified in this work. He must be a well trained diagnostician and generally able to recognize existing morbid tissue changes and the related abnormal functions. He should be able to trace the beginning of the pathological changes and have a reasonable comprehension of the ultimate result. He should know what management and treatment to give. He should have command of a selected few tested and tried pharmacological products which he may use with skill and usually with great benefit to the patient. His knowledge of the principles of immunology and bacteriology will enable him to apply recognized specific serums and a few antigenic vaccines with judgment and skill therapeutically and prophylactically. He will utilize in the general management of his patients rest, a proper environment and, so far as available, physical treatment. He may easily command hydro, thermo and occupational therapy and, in some communities, electro and massotherapy. He will have a proper conception of the value of calisthenic and other active exercises in the restoration of the functions of the locomotor apparatus. He will understand asepsis and will perform minor and emergency operative surgery with confidence and ability. He will especially care for emergency surgery in the form of fractures of the bones and the uncomplicated joint dislocations. His knowledge will enable him to know his limitations in major surgery and to safeguard the life and health of his patients by reference to well qualified surgeons.

This statement of the functions of the general practitioner indicates the need of a broad academic education and mental training preliminary to the study of medicine. It is not necessary in this short paper that I should enumerate the various steps which should be taken in the medical training of the family practitioner. The inference is plain that he must have a good knowledge of general and physiologic chemistry, of human anatomy and physiology, of pharmacology, of general pathology with constant training through the four years of residence in morbid anatomy, of epidemiology, immunology and psychology. In the clinical branches he must have the training of his brain, special senses and hands in the recognition of disease. He must learn to use

the simple diagnostic aids in the form of instruments and laboratory tests. With this knowledge of the methods of diagnosis he must have constant and daily opportunity to study disease as expressed in the ambulatory and ward patients. He must have an opportunity to observe the etiological relations of occupations, environment, social conditions and other factors to disease. He must learn and recognize the importance of community as well as individual disease. He must have the opportunity to observe the results of medical treatment and management and the final condition of the patient after operative surgery. He must have an opportunity to witness minor surgical operations, emergency surgery, and especially to have practical training in the treatment of fractures of the bones and of dislocations. In the hospital he should have an opportunity for the practical study of dietetics and of dieto-therapy. He should have practical experience in the measures of disinfection in the sick room and especially in the control of communicable diseases. In the fifth or interne year, the major part of the training should be along the same lines as that of the third and fourth years in residence. The bright and energetic student will find opportunity to apply himself to elective investigatory work with much benefit to himself. But the large majority of the medical class will be fully engaged in this broad and necessary practical training.

Finally, it must be said that in addition to the educational qualifications, both academical and medical, the family physician must be a man of character. His daily life must be a practical expression of honesty, morality, and resourcefulness in service to his patients. He will have a due consideration of his own health and responsibilities and at proper periods will play as he works with well directed energy, giving and asking half the road and fair play.

1550 North State Parkway.

Public Health

In the T. B. Field.

HOOKWORM IN TUBERCULOSIS.

Incidence of hookworm and other intestinal parasites among patients of the State Sanatoria for treatment of tuberculosis gives rise to interesting speculation as to the contributing factors in breakdown from tuberculosis infection. Feces examinations of patients at Catawba Sanatorium show an incidence of slightly less than 6 per cent of hookworm or other intestinal parasites.

A typical case was sent to one of the State tuberculosis sanatoria by her family physician. Physical examination disclosed fine and medium rales throughout the front of the chest, the rales being especially marked after the patient exhaled fully, immediately gave a slight cough, followed by a quick inspiration. Laboratory tests showed positive sputum, and examination of feces showed hookworm eggs. Other laboratory tests were negative. Stereoscopic films of the chest showed rather extensive involvement of both lungs, corresponding to the physical signs.

Thymol treatment for hookworm was given and the patient was started on the routine sanatorium treatment for her lung condition, with favorable response.

This case gave a history of apparent good health up to August, 1920, when influenza developed, with subsequent loss of weight and strength, cough and expectoration and other symptoms suggesting tuberculosis.

Is it not possible that in this case the presence of the intestinal parasite proved the determining factor between normal convalescence and development of active tuberculosis? As contributing toward lowered resistance and presenting favorable conditions for clinical tuberculosis, sanatorium experience seems to indicate that hookworm and malaria should be considered. Tests for these conditions are made free of charge by the State Board of Health. Laboratory records at State Sanatoria show many unsuspected cases would be found if tests were made. No one will question the statement that both hookworm and malaria lower the resistance of the individual in whom they are found and no one will deny that as a result of lowered resistance tuberculosis often develops in cases that would otherwise never break down. It is generally believed that most persons have a latent tuberculosis infection. This latent infection becomes active disease usually when some debilitating influence lowers the resistance of the individual, and thus makes the way easy for the advance of the tuberculosis germ.

Chesterfield Public Health.

Supervisors of Chesterfield County have unanimously voted an appropriation for continuing co-operative sanitary work in the county. This ensures the third year of the work in Chesterfield and establishes a precedent for the State. In addition to the sanitary work, which will be continued along the lines followed the past two years, a more ambitious public health program has just been inaugurated, principally through the local Red Cross. A health office has been opened in Chester, and will be used as headquarters for the sanitary demonstrator, the county nurse and her assistants, the county home demonstration agent and the Red Cross. This centralizes virtually all health activities of the county.

Bilateral Induced Pneumothorax.

A report on bilateral successive pneumothorax (R. Burnand, Bulletins de la Societe Medicale des Hopitaux, Paris) summarized in *Journal of the American Medical Association* for March 5, 1921, is interesting. Burnand found that the compressed lung, after three years of artificial pneumothorax, expanded practically normally, resuming its functions. Usually it is difficult to determine when it is indicated to suspend administration of artificial pneumothorax. The case reported in the French journal showed, after five months, such disturbance in the other lung that a pneumothorax was induced on the other side. Conclusions drawn from other cases reported were that successively bilateral pneumothorax is contraindicated, except in very unusual circumstances.

B. L. T.

Laboratory of the State Board of Health.

The director of the laboratory has just returned from a conference of the laboratory directors of the Southern States, held in Atlanta. This conference was very practical and interesting and some of the matters discussed will be of interest to Virginia physicians.

It was unanimously agreed that urinalyses and blood counts were not public health matters and, therefore, not a proper part of the work of the Bureau of Health Laboratory, except perhaps, in the case of a clinic operated directly by the Board of Health. This has always been the policy of this laboratory but, nevertheless, we get frequent requests for such examinations.

Tissue examinations they felt should be available for persons unable to pay. The best method of handling these, however, was thought to be by the State Medical School. The pathological department of the Medical College of Virginia has already agreed to handle such specimens for us where the proper information comes with the specimen.

It was also agreed that the examination of feces for the tubercle bacillus was impracticable and not worth while.

The examination of ordinary vaginal smears for the gonococcus was also decided to be useless and it was agreed that such specimens should be reported as unsatisfactory and never as negative. We recommend taking specimens from the female as follows:—

"Douche the vaginal tract with sterile water or normal salt solution and cleanse the vulva, then (a) using a vaginal speculum obtain a smear directly from the external os, or (b) by expressing pus (?) from ducts of Bartholini glands and making smears, or (c) making smear directly from urethra, as in male."

Judging from reports rabies is much worse in the other southern states than in Virginia. It is unfortunate indeed that the muzzling laws in this State are not enforced, for we have the opportunity to prevent this disease from ever becoming a serious problem with us. When once it gets a start thousands of dollars will be spent in an effort to control it, while now the problem would be much simpler.

Aubrey H. Straus, *Bacteriologist.*

Analyses, Selections, Etc.

Rural Jobs For Doctors.

Inhabitants of cities have no idea of the medical crisis which has developed in the rural districts not only of this State but throughout the country. The cities themselves, with the exception of New York and perhaps one or two other very large centers, are undermanned as respects doctors, but in many outlying regions there are no doctors at all, while in others there are only men well on in years, near the retiring age of 65 and ready to give up active practice.

The condition is general. Towns in Massachusetts have been offering bonuses to physicians to settle within their boundaries; one, the town of Otis in the Berkshires, proposes

to pay $500 a year out of the public treasury if a doctor will locate there. Other places have offered to build a house for a settling doctor, to buy and keep an automobile for him or to guarantee him a certain income annually. In spite of all inducements, however, it is increasingly difficult to attract medical graduates to country practice, and the lack of protection against disease of large groups of farmers and their dependents grows more and more acute.

Conditions in this State (New York) have become so bad that the legislature is now called on to provide a remedy. Dr. Hermann M. Biggs of the State Health Department has devised a plan to furnish relief: it has been embodied in a bill introduced in both the Senate and Assembly at Albany which will be pressed for passage at the present session. The proposed system includes the erection of hospitals, clinics and laboratories in every county in the State, equipped with all the modern facilities for study of disease and treatment of patients. Not only will there be all the necessary instruments and apparatus but up to date doctors and graduate nurses will be attached to each. At the same time they will not be run in competition with private practitioners, but, on the contrary, will be thrown open to these. Any doctor may have their aid in diagnosis and treatment of his patients without expense, and any sick person going to them may choose his own doctor.

As matters stand this plan seems to be the only way of meeting a great public peril. Whole countrysides cannot be left without any refuge for the ill or injured. The problem of financing it is one which must be worked out.

Country doctoring is everywhere a thankless, unprogressive life in its present conditions. In creating hospital and dispensary places with pay a primary encouragement will be created by Dr. Bigg's plan. Further, the certainty of means for sincere, modern curative work and for keeping abreast with the progress of medical science will be a pull that will counterbalance many hardships in the minds of young men who combine some taste for the country with professional ambition.—*N. Y. Herald*, March 29, 1921.

In Writing Advertisers Please Mention This Journal.

Secretary's Announcement

Medical Society of Virginia, Lynchburg, October 18th-21st.

The next meeting of the Medical Society of Virginia promises to be one of the most interesting in the history of the society. The president, Dr. A. L. Gray, recently visited the Lynchburg and Campbell County Society and plans were suggested for a program of unusual merit and for giving the visiting physicians the time of their lives. Several innovations are contemplated—among them an "Oration on Medicine" by some distinguished visiting physician, a similar one on "Surgery," etc. It is planned to have one each day and it is probable that the meeting will be divided into sections so that the program may be held strictly to schedule. The Lynchburg physicians are anxious to have a large attendance and they are making plans to furnish real entertainment for those who are fortunate enough to get there.

The American Medical Association, Boston, June 6th-10th.

The meeting of the American Medical Association in Boston in June will tax heavily the transportation facilities from the South to that city. There is the ordinarily heavy travel north at that season which, coupled with the converging of nearly all of the southern railroads at Washington on the Pennsylvania and the Baltimore & Ohio, will make it difficult for Virginia physicians to get Pullman accommodations. Suitable facilities can be arranged if we can notify these railroads in advance as to approximately the number of members going. If you are planning to go notify your secretary. This will not be considered as binding but it will give the railroad officials an opportunity to make proper arrangements to take care of those who do go. Elsewhere in this issue your attention is called to the very attractive trip by boat from Norfolk to Boston. Physicians who want a real outing can get it on this trip—they should enjoy every minute of this delightful sea trip of thirty-six hours.

A little girl timidly asked the drug clerk for a package of pink dye.

"What do you want it for? responded the clerk. "Woolen or cotton goods?"

"Neither," said the child. "It's for ma's stomach. The doctor said she's have to diet, and she wants it a pretty color."—Selected.

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Editorial

Winchester Medical College.*

This, the first medical college in Virginia, was first chartered under the name of the "Medical School of the Valley of Virginia" in 1826. This school was inaugurated by two of the physicians in Winchester—Dr. John Esten Cooke and Dr. Hugh H. McGuire. There were only three professors in this school—Dr. Cooke teaching the Practice of Medicine and Obstetrics, Dr. McGuire, Anatomy, Physiology and Surgery, and Dr. A. F. Magill, Chemistry and Materia Medica. These three men, all men of decided ability, became very prominent in the profession in after years.

Doubtless, the beginning of this medical school was suggested by the successful law school of Judge Henry St. George Tucker, then in Winchester, which was organized in 1824 and had at this period about fifty students, many of them afterwards becoming eminent men.

Dr. John Esten Cooke had lived in Fauquier County, Virginia, but in 1821 moved to Winchester. He had a great reputation as a practitioner and had a large and successful practice in Winchester. In about 1829 he removed to Lexington, Kentucky, becoming there Professor of the Practice of Medicine in the Transylvania University. He was a medical writer of note, his principal book being a treatise on Pathology and Therapeutics. He was also a large contributor to the medical journals of that time.

Dr. Hugh H. McGuire, who came from a distinguished Irish family, was born in Winchester in 1801, his grandfather having removed from the County of Fermanagh, Ireland, to Winchester, in 1754. He was led to study medicine by a visit of the eminent surgeon, Dr. Physick, who came to Winchester on horseback from Philadelphia to operate for stone in the bladder upon an uncle of young McGuire. The latter returned to Philadelphia with Dr. Physick and began the study of medicine, graduating at the University of Pennsylvania in 1822. Returning to Winchester, he began the practice of medicine. He soon developed a prefernce for surgery, and did almost exclusively the surgery of the northern section of the State. Among his first operations was that of cataract, which he successfully performed with a needle made under his direction by a mechanic in Winchester. He also performed thirty lithotomies without the loss of a case. Surgery in those days, without the use of anaesthetics, was far more difficult and trying to the operator than at present. The writhings, twistings and screams of the patient were very trying to the operator. In those days, when the country was sparsely settled and the means of communication very limited, men were much more independent and thought and acted for themselves. Dr. McGuire was one of those men who depended upon his own judgment and acted and spoke as he thought. When he was still a young surgeon, a prominent gentleman in the town was found to have a stone in his bladder; Dr. McGuire determined to operate upon him—being the first operation of this kind attempted certainly in this part of Virginia. Some of the elderly and more conservative men of the town urged him not to attempt it, saying Dr. Physick was the only man who operated for stone; Dr. McGuire replied, "Dr. Physick is only a man as I am." He operated and the patient made a good cure.

Dr. McGuire was tendered a professorship of surgery in Louisville and Philadelphia, but declined both. Though at an advanced age, he served through the war in the medical department of the Confederacy. He died in 1875.

Dr. Magill, a native of Winchester, later on

*This history of one of the oldest medical schools in this country was written by Dr. McGuire at the request of the editor and we are deeply appreciative of the study and time he has given in the preparation of the article. We would also be glad to have for our records other facts of the medical history of the State, of which our readers may be cognizant.

became a professor in the University of Virginia. The school ceased to exist in 1829—due largely to the removal of Drs. Cooke and Magill. In 1847 the college was revived, a new charter was obtained, and the name was changed from Medical College of the Valley of Virginia to the "Winchester Medical College". A loan of $5,000 was obtained from the Literary Fund of the State and additional funds were subscribed by the people of Winchester; a new site was purchased and a very handsome building was erected. This building of red brick and stone trimmings contained two lecture rooms, a surgical ampitheater lighted by a large glass dome, dissecting room, chemical laboratory, museum, and some offices. The faculty consisted of Dr. Hugh H. McGuire, Professor of Surgery; Dr. J. Philip Smith, Professor of the Practice of Medicine; Dr. William Bradford, Professor of Chemistry and Materia Medica; Dr. J. H. Straith, Professor of Obstetrics and Diseases of Women and Children, and Dr. Daniel Conrad, Professor of Anatomy and Physiology. Later on, Dr. Bradford was succeeded by Dr. Bushrod Taylor and Dr. Conrad by Dr. J. Wm. Walls. With the exception of the chair of Operative Surgery and Surgical Anatomy held for three years by Dr. Hunter McGuire, the faculty remained the same until 1861.

The teaching in this college was very practical. Feeling that a session of four months with six or seven lectures a day, was but ill calculated to teach the novitiate the important principles of his profession, the faculty determined at the organization of the school to obviate this difficulty by having a session of eight months' duration, and arranging the lectures so that generally but two, and never more than three, were delivered during the day. These, occupying only the morning hours, left the student ample time for recreation, while the afternoon was spent in dissection—and the night afforded uninterrupted time for preparation for the labors of the following day.

Believing also that nothing is so useful to impress the subject of a lecture upon the mind of the student as daily examinations, they were connected with the lectures; these embraced all of the preceding lecture with such enlargements and comments as were deemed necessary. This was done with no desire to place the students in a comparative grade but to stimulate them to diligence, and by correcting any erroneous impressions, to impress, step by step, the facts of the science upon the study of which they had entered.

There was a very good chemical laboratory in the building and the lectures upon this subject were considered very good. There was in the surgical department a clinical demonstration given at each lecture, the students, when possible, assisting in the surgical operations.

In the Anatomical Department, anatomical material was ample and there were many dry and wet specimens accumulated. With the aid of the professor of anatomy, dead subjects were frequently gotten—sometimes going miles to get them, of course, always at night, and many cold nights the professor of anatomy and some of the students were frequently driving and digging all night to secure a proper subject. In fact, it was this search after dead bodies which led to the destruction of the college building.

John Brown made his famous raid at Harper's Ferry in October, 1859. One of Brown's sons came with this party of outlaws. He did not enter the fort or stockade with his father but attempted to seize Hall's Rifle Works at the upper end of Harper's Ferry and directly upon the Shenandoah River. In the early part of the fighting nearly all the men at this point were killed or escaped across the river into the mountains. Many of the students from the Winchester Medical College, led by the excitement of the time, went to Harper's Ferry the morning of Brown's capture of the place—there being a railroad from Winchester to Harper's Ferry. In leaving the train before it reached the main station, they saw this dead body lying upon the banks of the river and, always looking for dissecting material, immediately grabbed it, doubled it up in a store box, and shipped it back to the college where it was found by the clothing and the papers upon the body to be Owen Brown, son of John Brown. The writer saw this body when it was brought into the college building; the man was shot directly in the umbilicus. A dried preparation was made of the body and it was afterwards used for teaching purposes.

When the Federal Army, under General Banks, first entered Winchester, in March, 1862, this body was sent north and the college buildings all burned by the order of General Banks.

Afterwards, on December 16, 1859, among

those being hung in Charlestown, Va., for participation in this raid of Brown, were two negro men, Shields and Copeland. These bodies were scarcely buried after the hanging, before the students of the Winchester Medical School had dug them up and they were brought to the college. The writer saw them as they were brought into the college with the ropes still around their necks.

It was the raid of John Brown and also the harsh treatment of the police in Philadelphia, which determined the southern students in Philadelphia to leave that city and come south to Richmond and New Orleans. Dr. Hunter McGuire was the leader in this movement and from his own funds advanced money, for the transportation to Richmond, to those who were unable to pay their own traveling expenses.

In 1861 the college determined to inaugurate a summer session in addition to the winter one and Dr. Hunter McGuire, who had been the previous winter in connection with the New Orleans School of Medicine, returned to Winchester and became again, together with Dr. J. J. Straith, professor at the Winchester Medical College, making the professors at that time six. But, during the month this new session was to have begun, the secession of the State of Virginia from the United States took place and this new feature of the college was never inaugurated.

April 1, 1861, the college ceased to exist. The Civil War beginning, many soldiers were brought to Winchester and many were taken sick; the college building was used as a hospital from that date until it was burned in March, 1862.

The college only had from thirty to forty students each year. The standard was always high. The catalogue of 1860, which I now have before me, states that no graduate of this college who applied for entrance in the Medical Corp of the United States Army or Navy had ever failed to pass either of these boards successfully. It put into practice many of the recommendations of the American Medical Association, as well as those of other medical organizations, but many reforms were instituted upon its own initiative.

W. P. McGuire, M. D.,
Winchester, Virginia.

What Is The National Research Council?

It is an organization which, while clearly recognizing the unique value of individual work, hopes especially to help bring together scattered work and workers, and to assist in co-ordinating, in some measure, scientific attack in America on large problems in any and all lines of scientific activity, especially, perhaps, on those problems which depend for successful solution on the co-operation of several or many workers and laboratories either within the realm of a single science or representing different realms in which various parts of a single problem may lie. It is particularly intended not to duplicate or in the slightest degree to interfere with worthy work already under way: to such work it only hopes to offer encouragement and support where needed and possible to be given. It hopes to bring to bear on scientific problems the wisdom of numbers where such wisdom is not made unnecessary by the competence of genius. It hopes to help maintain the *morale* of devoted isolated investigators, to stimulate renewed efforts among groups willing but halted by obstacles, to educate the managers of great industries, which depend on the applications of science for their success, to a fuller appreciation of the necessity of support by them of fundamental science, and to encourage the interest of universities and colleges in research work and workers so that the inspiration and training of American youth for scientific work may never fall so low as to threaten to interrupt the constantly needed output of well-trained and devoted scientific talent in the land.

The various methods of contributing practical assistance to American science include the bringing together of industrial concerns interested in the development of the scientific basis of their processes and inducing them to support the establishment of special laboratories or institutes devoted to this development under the advice of experts representing the Council: the stimulation of larger industrial organizations which may be in a situation to maintain their own independent laboratories to see the advantage of contributing to the support of pure science in the universities and research institutes for the sake of increasing scientific knowledge and scientific personnel on which future progress in applied science absolutely depends: the direct maintenance of university research fellowships; the publication of valuable scien-

tific papers for which there is at present no other suitable prompt means of issuance; the preparation of bibliographies and abstracts of current scientific literature; the setting up of well-considered mechanisms for the collection and distribution of information on current research, university and industrial research laboratories and facilities, research personnel, etc.; and the dissemination through the press and magazines of popular but authentic scientific news and information for the sake of increasing the public interest in and support of productive scientific work.*

News Notes

Our Forty-Eighth Annual Volume.

With this issue we begin our forty-eighth year of consecutive publication, during nearly twenty-two years of which the journal was issued semi-monthly. This is a good record in point of time and we do not feel that the journal has been a laggard in the good it has accomplished. In bringing it to its present high standard our contributors and patrons have aided materially, but let us not be weary in well-doing for, with your help, we hope for it yet greater things.

Let us have your co-operation more fully than before. Each of our readers may contribute his quota. True, we want your original articles and case reports, but we also want proceedings of your societies and news items about yourself and friends. However unimportant they may seem to you, they will interest some one.

Last, but not least, we want your help in making our advertising pages more profitable. Look over these pages each month. Securing, preparing and holding advertisements is more of an art than you may think, and you may help here by patronizing, as far as possible, those who favor us. In writing our advertisers, let them know that you saw their advertisement in the VIRGINIA MEDICAL MONTHLY.

The Virginia Tuberculosis Association,

In its 1920 sale of Christmas Seals, reports a total of $50,699.58. Of this amount $30,000.00 has been returned to the local organizations for tuberculosis work and five per cent. to the National Tuberculosis Association. The funds returned to the respective communities are being used for educational work, case finding, nursing service, nutrition work, dental clinics, child welfare and material relief. Of the one hundred counties in the State, ninety-eight reported sales in the campaign, thus demonstrating the wide spread interest in the tuberculosis problem.

On January 15th, the offices on Grace Street were damaged by fire and the Association is now located at 611 and 612 Chamber of Commerce Building.

At a meeting of the Board of Directors held March 2nd, Mr. Irving L. Spear, of Amherst, Massachusetts, was elected as assistant to Dr. Roy K. Flannagan, executive secretary. Mr. Spear is a graduate of Amherst College and an ex-service man. With the necessary funds assured, an aggressive campaign is planned for the coming year, including clinics and constructive organization work.

Eliminate Undernourishment With Milk.

There are many children underweight and undernourished and the reason for these conditions is not poverty alone but in many cases a lack of understanding of the nourishing properties of certain foods, especially milk. According to a bulletin issued by the U. S. Department of Agriculture, a survey of 10,000 Chicago school children showed that 40% were 7% underweight and investigators were surprised to find that of these more than a half were from comfortable homes in the residential section.

The value of milk in the diet has been strikingly shown in milk-feeding demonstrations carried on in certain schools. In one of the Kansas City schools, a survey made in May, 1919, showed that 37% of the children were undernourished. They were given a school lunch of milk and graham crackers and, by September, the percentage of undernutrition had fallen to 25%. The following March, only 3.7% were below weight and it was expected that all would be brought to normal in a short time. Similar results having been obtained in other cities brings home the fact that milk is a food of highest value in the treatment of children who are undernourished and underweight.

National Hospital Day.

There have been days set aside for many things, but to now there has never been a day

* Vernon Kellogg. Reprinted from International Conciliation. Sept., 1919.

set aside to show the great work for the helpless and afflicted which is being accomplished by the 8,000 hospitals of the United States and Canada. President Harding, governors of states and officers of corresponding rank in Canada have been asked to proclaim May the 12th as National Hospital Day. This date was selected as it is the birthday of Florence Nightingale, the pioneer in modern hospital and nursing methods. Last year we celebrated the hundredth anniversary of her birth and nothing seems more fitting than that this day should be perpetuated.

For the observance of this day, it has been suggested that the public may be invited to visit and inspect hospitals, or certain wards in them; literature may be distributed telling of the work and needs of hospitals; and publicity should be given at the moving picture houses and through the newspapers as to the requirements for admission to training schools and the desirability of nursing as a profession.

The Southwestern Virginia Medical Society

Will hold its semi-annual meeting in Pulaski, May 11 and 12, under the presidency of Dr. W. R. Rogers, of Bristol. Dr. E. G. Gill, of Roanoke, is secretary-treasurer of the society. Dr. Stephen Watts, University, Va., as invited guest, will give an address on Surgery of the Breast. Mr. G. H. Winfrey, secretary-treasurer of the Medical Society of Virginia and business manager of the *Virginia Medical Monthly*, will give a short talk. A banquet will be an enjoyable feature of the first evening.

On the morning of the 12th, there will be a symposium on "Cardio-Vascular-Renal System," which will be participated in by Drs. J. W. Preston, F. H. Smith, A. B. Greiner, S. B. Cary and A. P. Jones. Among the other doctors whose names appear on the program are: Drs. E. E. Watson, A. D. Evans, C. E. Dyer, K. D. Graves, Claude Moore, B. E. Rhudy, S. H. Yokeley, G. A. Wright, W. R. Whitman and E. L. Sutherland.

The Valley Medical Association

Will hold its first meeting in Staunton, Thursday, May 26, 1921. All white physicians, members of their County Medical Society or of the Medical Society of Virginia, residing in the counties lying adjacent to or being in the Valley of Virginia, are eligible to membership and are urged to send their applications at once to the secretary, Dr. A. C. Byers, Harrisonburg, Va., who will also be glad to answer any inquiries about this society.

The president of the society, Dr. M. J. Payne, Staunton, Va., requests us to state that an all-day attractive program has been arranged and quite a number of papers have been promised, but it is desired to have as many papers as possible, even though a night session will be necessary to complete the program. Lunch will be served in the course of the evening, the hour to b made convenient to members. Those eligible are urged to send in applications and titles of papers and to make their plans to attend and take an active part in a real live and active medical association. There will be no dead issues fought nor lost motions allowed from 9 a. m. to 6 p. m.

Roanoke Academy of Medicine.

At the regular meeting of the Academy, March 7th, Dr. John Staige Davis, of the Medical Department of the University of Virginia, read an interesting and classical paper on "Rupture of the Heart with Report of a Case." Dr. J. Shelton Horsley, of Richmond, Va., presented a most scientific paper on "A Study of a Series of Nephrectomies," illustrated with lantern slides. After the scientific program a delightful buffet supper was enjoyed by the local members and a number of invited guests.

At this time, Dr. Geo. M. Maxwell and Dr. J. T. McKinney, both of Roanoke, are president and secretary, respectively.

Dr. Charles L. Outland,

Representing the American Friends' Service Committee, sailed recently from New York for a turbulent corner of Serbia where Montenegrins, Albanians and Serbians are in continual conflict. Accompanied by his young wife, he will take charge of the American Friends' Hospital at Petch, a small town in Southern Serbia near the old Albanian border.

During the war, Dr. Outland spent 18 months in Quaker relief work in France, working in Paris, Sermaize, Dole, and the Verdun area. The American Friends' Service Committee is closing its mission in Serbia with the exception of the medical work at Petch, where they have a small hospital. Dr. Antoinette E. C. Russell, of Philadelphia, who is in charge, will come home as soon as Dr. Outland is established there. The hospital and dispensary minister to 80,000 persons liv-

ing in the Petch district. An important feature of Dr. Outland's work will be to continue this little Quaker center of "peace and goodwill" in the heart of a turbulent district where feuds and vendetta have long held sway.

Dr. Outland, who is a native of Woodland, N. C., has been an intern at the Johnston-Willis Sanatorium and the Sheltering Arms Hospital at Richmond, Va. Since September, 1919, he has been connected with the North Carolina State Board of Health in the United States Public Health Service. Prior to their marriage, Mrs. Outland held a secretarial position in the Internal Revenue offices in Richmond.

While abroad they will visit England, France, Belgium, Switzerland, Germany, Austria, and Jugo-Slavia.

Public Health and the Submerged Classes.

A survey, authorized by the Oregon legislature, was recently carried out by the University of Oregon in collaboration with officials of the U. S. Public Health Service, to ascertain the "mental health" of its population. The object of the work primarily was to obtain an idea of the problem that confronted that state in the way of economic and industrial loss, to enable the legislature to devise a program that would aid in restoring to health and to lives of industrial usefulness many of those down and out, and to save hundreds of children from growing up to lives of misery. Recent studies by the U. S. Public Health Service have demonstrated that feebleminded-ness is an important factor in prostitution, and a marked proportion of juvenile delinquency is traceable to some degree of mental deficiency in the offender.

From the survey, it was found that more than 75,000 men, women and children, out of a total population of 783,000, are dependents, delinquents, or feebleminded, and are a constant drain on the finances, health and morality of the state. Also, more than 500 children out of a school population of 32,500 were found to be more or less mentally deficient, many of these in a state where they could yet be much benefited.

There is no doubt but that similar conditions obtain in practically all of the states and legislation should be enacted to help these classes.

Campaign For Orthopedic Hospital.

A campaign has recently been held in this city to raise $25,000 for the support of the hospital for crippled children, otherwise known as the Dooley Hospital. An appropriation of $10,000 a year made by the State legislature has been far from enough to carry on the great work being done at this hospital. During the last fiscal year, 303 operations were performed and 600 plaster casts applied, 589 new patients were treated and 2,099 visits were paid in the out-patient department. It is estimated that there are between two and three thousand crippled children in Virginia, 67% of whom were afflicted prior to reaching the age of 16 years. Of these, statistics show that 90% can be made self supporting if treated in time. Can there be a better cause to help?

The board of directors is composed of a representative membership among whom may be noted names of the following doctors:—Drs. Wm. T. Graham, McGuire Newton and Stuart McGuire of Richmond, and L. T. Royster, of Norfolk.

Local Social Hygiene Conferences.

In March, a two-day conference was held in Richmond, which was largely attended by men and women from twenty-eight counties of the State. This was the first of a series of local conferences on social hygiene matters which will be held in Virginia. Dr. Ennion G. Williams, State Health Commissioner, presided. Cooperating with the local organizations were the U. S. Bureau of Education and the U. S. Public Health Service, the Interdepartmental Social Hygiene Board, the American Social Hygiene Board, the Virginia Social Hygiene Association, and the medical profession generally. The second of these conferences was scheduled to be held in Norfolk in April, and the third in Lynchburg later. Other meetings will be held throughout the State during the year, but definite arrangements have not yet been made for them.

Recent Visitors To Richmond.

Among the Virginia doctors recently visiting in this city are Drs. H. M. Snead, South Hill; Geo. L. Smith, Newport News; Clarence Porter Jones, Newport News; Theodore Hough, University; E. L. Kendig, Victoria; W. D. Prince, Stony Creek; W. Brownley Foster, Roanoke; George C. Callaway, Norwood; Wm. E. Price, Meredithville; T. C. Harris, Kenbridge; George H. Snead, Fork Union; James R. Gorman, Lynchburg; H. U. Stephenson, Toano; W. A. Brumfield, Blacks-

burg, H. H. Hoskins, Mathews, and C. V. Montgomery, South Hill.

Married—

Dr. Stuart Dudley Williams and Miss Mabel Ulrica Grogg, of Norfolk, Va., March 10, 1921.

Dr. Charles Brown Crawford, Washington, D. C., and Miss Joyce Ince, Toronto, Canada, January 22.

Dr. Leslie B. Evans,

Windsor, N. C., has been appointed by the Governor of North Carolina as a member of the board of governors of the State Hospital for Insane at Raleigh, for a term of four years.

Increase In Number Of Venereal Diseases Reported.

For the three months ending last September, there was an increase of about 30 per cent. in cases of venereal disease reported from all states except Nevada and the District of Columbia, as shown by U. S. Public Health Reports. Seven states have laws requiring physicians to report all such cases with the names of patients and nearly all other states require them to be reported without names, so the 30 per cent. increase may mean not that the diseases have increased in incidence but that more physicians are obeying the law. Reports seem to indicate that physicians in western states report these disease better than do physicians in the eastern states.

Dr. Stuart McGuire,

Of this city, was called to Ormond Beach, Fla., the first of this month, on professional business.

Physicians May Be Allowed To Prescribe Beer.

It is announced that the Bureau of Internal Revenue will probably soon draft regulations which will permit physicians to prescribe beer, when in their judgment it will prove beneficial under terms of the Volstead enforcement act.

Burning Causes Number Of Deaths.

According to statistics compiled by the State Bureau of Vital Statistics, 279 persons in Virginia met death last year as a result of burns, 150 of whom were white and 129 colored. A majority of these deaths were among children under three years of age. Several adults lost their lives while attempting to start fires with kerosene oil.

Dr. John D. Foltz,

Of this city, who was recently operated on for acute appendicitis, is now much improved.

Medical Society Of Virginia.

The medical fraternity of Lynchburg is actively at work arranging for the approaching meeting of the Medical Society of Virginia in that city, October 18-21, inclusive. This promises to be largely attended and will be pleasant, as Lynchburg meetings always are. Dr. George J. Tompkins is chairman of the local committee on arrangements and has serving with him Drs. Don Preston Peters, Jas. Morrison, F. O. Plunkett, Hunter B. Spencer, Thos. N. Davis, John Carroll, John Walker, Elisha Barksdale, W. H. Ferguson, C. E. Busey and R. M. Taliaferro.

Dr. E. C. Levy,

Director of Public Welfare of Richmond, left early this month for a visit to Atlantic City. Dr. Levy was recently struck by an automobile and, as a result of injuries received then, his physicians advised a rest.

Fund Raised For Hospital In Bristol, Va.

In a drive conducted in Bristol, Va., the latter part of March, $150,321 was raised to be used in erecting the King's Mountain Memorial Hospital, in that city. These subscriptions were made by less than 1,500 people.

Dr. George C. Callaway,

Norwood, Va., has returned home after a visit to his daughter and son-in-law, Dr. and Mrs. Wm. Reid Putney, in North Carolina.

Onancock Doctors Return From Trip.

Drs. Oscar L. Powell and James C. Doughty, have returned to their homes in Onancock, Va., after a trip to New York.

Dr. P. E. Tucker,

Of Buckingham, C. H., Va., we understand is a candidate for nomination to the House of Delegates from his district.

Radium Scarce In Germany.

It is stated that Germany, once the chief producer of radium, now has rarely enough to meet the needs of its great universities. There is said to be only one gram in Berlin and proportionately even less at Heidelberg and other university cities.

President's Personal Physician.

President Harding has appointed Dr. C. E. Sawyer, of Marion, Ohio, his close personal friend, as his personal physician during his administration, with the rank of brigadier general in the medical reserve corps of the army. Dr. Sawyer is quite prominent in his section and one of the physicians in charge of

the Sawyer Sanatorium, just outside of Marion. He belongs to the homeopathic school and was recently president of the American Institute of Homeopathy.

Dr. and Mrs. Fenton Nichols

Have returned to their home in Purcellville, Va., after a visit of several months to North Carolina.

Dr. H. H. Foster,

Of Branchville, Va., recently enjoyed an automobile trip to Como, N. C.

Dr. A. J. Hurt,

Chester, Va., has been elected a member of the board of directors of the Chesterfield County (Va.) Fair Association, which is to hold a two-day fair at the county seat in October.

A Children's Code Commission

Has been appointed by Governor Davis, in order to bring Virginia's laws pertaining to the welfare of the children of this State up to date. They will examine the laws in other states relating to this matter and will suggest such changes in the Virginia law as may be necessary, though it is planned to keep the body of the present statutes practically intact. The commission is composed of nine members, two of whom are doctors: Drs. L. T. Royster, Norfolk, and Mary E. Brydon, of the State Board of Health.

Decline In Price Of Crude Drugs.

It is announced that crude drugs are beginning to feel the downward trend in prices. This has been largely due to the fact that buyers have held off until reductions were offered and importers have come to the point where they must liquidate certain of their obligations, hence the break in prices has followed.

Dr. James K. Hall,

Of Richmond, has been appointed a delegate from the Medical Society of Virginia to the annual meeting of the North Carolina Medical Society in Pinehurst, April 26-28, inclusive, and has been invited to read a paper at this meeting.

Dr. M. L. Townsend,

Of Charlotte, N. C., editor of *Southern Medicine and Surgery* (formerly *Charlotte Medical Journal*), was a visitor in this city in March.

Virginia Not Only State Short of Doctors In Rural Sections.

Under the department of ANALYSES, SELECTIONS, ETC., we are publishing a piece from the *New York Herald*, which was referred to us by the State Board of Health of Virginia. This shows that the shortage of physicians in rural sections is not confined to Virginia alone, but is general, and a plan for overcoming this obstacle is suggested which may be worthy of consideration in our own State.

Madame Curie To Visit United States.

Madame Marie Curie, the discoverer of radium, will visit this country in May, reaching the States about the 17th of the month. While here, she will visit Boston, Yale University, Philadelphia, Washington, Pittsburgh, Chicago, Rochester, Minn., Portland, Ore., San Francisco and Los Angeles. While in Washington, she will be presented by President and Mrs. Harding with a gramme of radium, valued at $100,000, by the women of America, who have contributed to a fund for this purpose in recognition of her scientific services.

Announcement was recently made of the award to Madame Curie of the gold medal of the National Institute of Social Sciences, because of the benefit of her discovery to humanity.

In Honor Of Mme. Curie,

The June issue of the *Medical Review of Reviews* will be a special radium number dedicated to Mme. Curie. The issue will consist exclusively of articles on radium and its uses, written by the most prominent radiologists in the United States and Canada.

Copies will be sent complimentary to every physician interested in the use of radium and any readers of this item who desire that issue may have it by asking for it from the *Medical Review of Reviews*, 51 East 59th Street, New York.

Special "Fracture" Number.

The *American Journal of Surgery* will in May publish another of its Special Issues, the subjects of the original articles in that number being limited exclusively to "Fractures." These papers will be by recognized authorities upon the subject of fractures and their treatment.

Dr. C. B. Ransone,

Who has been making his home in Newport News, Va., for about a year, has been appointed full time health officer of that city, succeeding Dr. W. F. Cooper who resigned that he might keep up his private practice.

Dr. Ransone was in the service of the U. S. Navy prior to locating in Newport News.

Dr. W. W. Robertson,

Who for a number of years has been located at Witt, Va., has moved to 149 Holbrook Avenue, Danville, Va.

Dr. and Mrs. Goodlatte B. Gilmore,

Norfolk, Va., are receiving congratulations on the birth of a daughter—Evelyn Hales Gilmore—on March 23, 1921.

Watts Hospital,

Durham, N. C., through the will of the late George W. Watts, is to receive $200,000 which, with his former donations, makes the gifts to this hospital exceed $1,000,000.

Dr. Guy S. Kirby,

Marion, N. C., has been appointed a member of the board of governors of the State Hospital at Raleigh, N. C., for a term of two years.

"Musical Clinics"

Have recently been conducted at the Chicago State Hospital for Insane, which has more than 3,000 inmates. A Russian pianist of some note in Chicago stated that he believed he could exercise through music an effect upon the minds of some of the mentally unbalanced which would lead to a means of cure. Some interesting results are reported to have been obtained.

The American Association of Genito-Urinary Surgeons

Is to hold its annual meeting in this city on May 2 and 3, under the presidency of Dr. John H. Cunningham, Jr., of Boston. Dr. Richard F. O'Neil, also of Boston, is secretary. This will be the first meeting in the South, of this Association, which numbers about fifty members. Sessions will be held at the Jefferson Hotel. Dr. Robt. C. Bryan, of this city, is chairman of the local committee.

Dr. William H. Parker,

Of this city, was elected vice-president of the Business Men's Association of Church Hill and Fulton, at its annual meeting in March.

Richmond Has Low Typhoid Rate.

In a list published in a recent issue of the *Journal of the A. M. A.*, Richmond is shown to have the lowest typhoid fever rate in cities of 150,000 to 200,000 population south of the Potomac River.

Belgian Medical School Receives Donation.

The Rockefeller Foundation has announced the donation of 43,000,000 francs toward a total budget of 100,000,000 francs for a new building and endowments of the medical school of the University of Brussels. Part of the money is to be devoted to the establishment of a nurses' training school in memory of Edith Cavell, the martyred English nurse.

War On Sleeping Sickness.

In sveral of the Eastern states, the presence of sleeping sickness, or encephalitis lethargica, has caused no little alarm and a few cities and states have made the disease reportable. During 1920, there were reported in New York City about 500 cases with a comparatively small death rate. However, in the first seven weeks of 1921, there were more than 218 cases in that city, about 25% of which were fatal. Like influenza, encephalitis lethargica seems to be world wide, only a few cases however, being reported in some countries. While it still baffles the skill of experts, there are sufficient recoveries for us to hope for good results ultimately.

Dr. Herbert Old,

Philadelphia, Pa., has recently been a visitor to his former home, Norfolk, Va.

T. B. Clinics In Halifax County.

Free tuberculosis clinics were recently held at several locations in Halifax County, Va., with the result that 145 examinations were made. There were fourteen active cases and three suspects reported and these were referred to their family physicians for attention. Dr. T. N. Davis, clinician of the Lynchburg, Va., Health Department, served as diagnostician under the auspices of the State Board of Health.

Dr. George A. Torrence,

Until recently of Pound, Va., has moved to Hot Springs, Va.

Dr. I. L. Chapman,

After a prolonged illness, is recuperating in the North.

Dr. Hubert Work,

Pueblo, Colorado, president-elect of the American Medical Association, has been appointed by the President as first assistant postmaster general.

Wife Allowed Damages Against Husband For Venereal Infection.

The North Carolina Supreme Court has affirmed a judgment, according to *Public Health Reports*, allowing a wife to recover damages

from her husband because he had infected her with a venereal disease. It was argued by the husband that the fact of marriage constituted a bar to the action, but the Court held that under the statutes of North Carolina a wife could maintain an action against her husband.

Dr. H. D. Scott,

Of Monroe, Va., left for New York, the middle of March, from which place he expected to sail for a pleasure trip to South America.

Dr. F. W. Lewis,

Of Morattico, Va., has been re-elected divisional superintendent of the schools of Lancaster and Northumberland Counties.

Dr. Lawrence T. Price,

Of Richmond, president of the General Alumni Association of the V. P. I., visited the alumni chapters of New York and Schenectady, March 22 and 24, and returned home by way of Newport News, Va., to attend the meeting of the chapter in that city.

Health Talk.

Dr. Ennion G. Williams, of Richmond, State Health Commissioner, last month gave a talk on "Preventive Medicine" before the students of Randolph Macon College in Ashland.

Dr. W. D. Prince,

Of Stony Creek, Va., has announced his candidacy for re-election to a seat in the House of Delegates of the General Assembly of Virginia.

The American Proctologic Society

Is to hold its annual meeting in Boston, Mass., June 3, 4 and 6, with headquarters at Hotel Braemore. Sessions of the society will be held in the Boston Medical Library. There is only one Virginian—Dr. E. H. Terrell, of this city—in the membership of this society. Dr. Alois B. Graham, Indianapolis, Ind., is president, and Dr. Ralph W. Jackson, Fall River, Mass., is secretary-treasurer. Those interested in proctologic matters are invited to attend the meetings.

To Overcome Race Suicide,

The General Council of the Department of the Seine has instituted prizes for large families, according to a recent issue of the *Journal of the A. M. A.* The prizes are given mothers of legitimate children and of recognized illegitimate children. These mothers must have given birth to at least two living children and must have resided for three years in a commune of the department. Three hundred francs are given for the third child; 350 francs for the fourth, and a progressive increase of 50 francs for each additional child. The prizes are payable in two installments—150 francs on the thirtieth day after birth and the balance when the child is one year old. It has been suggested that an additional municipal tax be levied on bachelors to meet the heavy expense which will be entailed.

Dr. F. J. Kellam,

Formerly of Mineral, Va., has moved to Ernest, Pa.

Dr. H. C. Padgett,

Formerly of Bedford, Va., is now located in Roanoke, Va., with offices in Pythian Building.

Dr. W. T. Wimbish,

Formerly of this State, but who has been practicing in the West for several years, has returned to Virginia and is now located at Alberene, Va.

Massage and Exercise Combined.

Under Book Announcements in our February issue we noted the publication of the above book by Albrecht Jensen. The address of the publishers, as given at that time, has been changed and any inquiries about this book should be addressed to the author, Box 73, G. P. O., New York City.

Another Chiropractor Fined.

A chiropractor of Edinburg was recently fined $250 and costs by Shenandoah County magistrates, charged with practicing medicine without a license in violation of a state statute. An appeal was noted and it is stated that the case will be fought to a finish. Dr. J. W. Preston, of Roanoke, and Dr. P. W. Boyd, of Winchester, appeared at the hearing in behalf of the State Board of Medical Examiners.

Auto Accidents More Fatal Than Rail.

According to figures recently compiled by the Southern Railway System from official reports of the Census Bureau and the Interstate Commerce Commission, automobile accidents in the United States claimed 1,474 more victims in 1919 than did accidents on American railways. Deaths from automobile accidents showed a total of 7,969, an increase of 444 over 1918; deaths from rail accidents were 6,495, this figure being lower than that for any previous year since 1898.

Dr. and Mrs. Herman Hertzberg

Have returned to their home in Richmond

after a motor trip to Baltimore and Washington.

The American Congress On Internal Medicine,

At its annual meeting in Baltimore, in February, elected Dr. Sydney R. Miller, of that city, president. Dr. Frank Smithies, of Chicago, was re-elected secretary-general.

American Medical Association.

The annual meeting of the Association, to be held in Boston, June 6 to 10, inclusive, promises its usual quota of interest and pleasure. Clinics are to be held in the various hospitals on the 6th and 7th. The attendance promises to be large and it is urged that hotel accommodations should be made early. Dr. John T. Bottomley, 8 The Fenway, Boston 17, Mass., is chairman of the Hotel Committee, and will gladly assist in securing accommodations for those who write him.

Some of the Virginia fraternity are planning to make the water trip from Norfolk to Boston by the Merchant's and Miner's line. This gives thirty-six hours of relaxation and pleasure and may be found most enjoyable by those who do not often have the opportunity to enjoy a sea trip.

Admiral Stitt's Appointment As Surgeon-General Confirmed.

The nomination made by ex-President Wilson of Admiral E. R. Stitt as Surgeon-General of the U. S. Navy, has been confirmed by the Senate. He succeeds Rear Admiral Braisted, resigned.

Third Fire at Hospital This Year.

Early in March, fire destroyed the left wing of the Clarence Barker Memorial Hospital, at Biltmore, N. C., one of the largest hospitals in western Carolina. All patients were removed without injury. This was the third fire at this hospital since January the first of this year.

The American Association of Anesthetists

Will hold its ninth annual meeting at the Hotel Bellevue, Boston, June 6 and 7, the first two days of A. M. A. week. An interesting and instructive program of scientific papers is being arranged for this meeting.

The Interstate Association of Anesthetists will hold its seventh annual meeting at the Clifton House, Niagara Falls, June 1-3, in conjunction with the Canadian Society of Anesthetists and the Ontario Medical Association.

Miss Randolph Returns to Virginia.

Miss Agnes D. Randolph, who did such an excellent work in the fight against tuberculosis in Virginia prior to accepting a position with the Texas Public Health Association, has returned to Virginia. She is now officially connectetd with the State Board of Health in the capacity of director of the tuberculosis educational work, which is a new division of this work authorized by the last legislature.

Miss Blanche Webb,

Who has been with the State Board of Health as Director of Red Cross Nurses in Virginia, has accepted a position with the Henry Street Settlement in New York and assumed her duties there on April 1. She expects to remain there about a year, during which time she hopes to acquire information which will make her more valuable to Virginia when she returns here at the expiration of that time.

Dr. Flint Resigns From Yale.

Dr. Joseph M. Flint, since 1907 professor of surgery at Yale University, has announced his resignation on account of poor health, to be effective at the end of the present school year. After this, he will probably return to his home in California.

Dr. C. P. Obenschain,

Who for some years has practiced just outside of Lexington, Va., has located at New Hope, Va.

Civil Service Positions For Medical Men.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examination for medical interne at St. Elizabeth's Hospital, Washington, at $1,200 a year and maintenance, and vacancies in positions requiring similar qualifications, at this and higher or lower salaries.

Also examination for associate in clinical psychiatry and psychotherapy at St. Elizabeth's Hospital, at $2,500 a year, and positions requiring similar qualifications, at this and higher or lower salaries.

Appointees whose services are satisfactory may be allowed the temporary increase granted by Congress of $20 a month. Both examinations are open to men and women, appointing officers having the right to specify the sex desired in requesting certification of eligibles. Applications will be rated as re-

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ceived, for both appointments, until July 1, 1921.

Child Health Demonstration.

Preliminary plans for a child health demonstration, unique in character and scope and promising to prove of first importance in the general movement for conservation of child life and health, have been announced by the National Child Health Council, with headquarters in Washington. With an appropriation of $200,000 set aside for this purpose, the Council, composed of six leading national health bodies, will assist some American community of between 20,000 and 30,000 population and the surrounding county in securing as nearly as possible ideal conditions for the development of its children, from babyhood to adolescence, into sturdy, happy, useful citizens.

The first step will be the selection by a committee of experts of the community in which the demonstration will be carried on over a period of five years. Geographical limitations are not imposed in the selection of the community, but the Council believes certain qualifications necessary to insure results of greatest benefit to the entire country.

Swat the Fly.

Now is the time to begin the 1921 anti-fly campaign, if you have not already entered upon it. This subject is attracting the attention of sanitary and health departments all over the country. In a bulletin issued by the Merchants' Association of New York which is doing an active work in the anti-fly campaign, it is noted that the bibliographic list on the house fly in the last twelve years embraces 136 publications in books and bulletins, issued in many countries and printed in different languages. Get busy and swat the flies!

Syphilis And Insanity.

That syphilis causes a substantial percentage of existing insanity has long been recognized, but heretofore definite statistics bearing on the subject have been meager. To supply this need the U. S. Public Health Service queried the superintendents of 159 state hospitals for the insane in regard to the number of inmates who had become insane by reason of the disease. Of the 115 replies received, 88 supplied data that could be tabulated: and from this, it appeared that 15.5 per cent of admissions and 6.2 per cent of inmates among the men and, correspondingly, 6.1 and 2.2 per cent among the women were directly due to the disease. The excess in the percentage of admissions over inmates is due to the comparative short life of those who became insane by reason of the disease.

Shall We Have The Segregated District?

Three years ago the segregated district seemed too firmly intrenched in the large cities of the country to be ever dislodged, but today, according to data collected by the U. S. Public Health Service, it has few friends. A questionaire, sent to the mayors of all large cities with duplicates for reference to prominent men and women citizens and chiefs of police, brought 554 replies from 212 cities. The answers to the first three questions, which asked substantially whether houses of ill-fame, in and out of segregated districts, should be tolerated were from 80 to 90 per cent in the negative. Those to the fourth and fifth questions, which asked whether both the woman and the man should be examined medically and placed under surveillance if found infected were from 72 to 78 per cent in the affirmative.

Delaware Appropriates Money For Helping Mental Defectives.

In Delaware, a program has been inaugurated for institutional care and community supervision of mental defectives resident in the state. The legislature has appropriated $60,000 for improving the care and treatment of the mental patients in the State Hospital at Farnhurst. A training school for nurses specializing in neuro-psychiatric diseases will be opened, reconstruction aides in both occupational and physicotherapy will be engaged and additional physicians will be employed.

Dr. W. S. Butler, Jr.,

Of Roanoke, Va., has been in Baltimore, Md., since March 1, doing post-graduate work in urology at the Brady Institute, Johns Hopkins Hospital. He expects to be there until September 1, when he will resume his practice in Roanoke.

The Augusta County Medical Association, Inc.,

Held its regular bi-monthly meeting in Staunton on April 6, with a good attendance. Interesting papers were read by Drs. W. S. Whitmore, F. E. Hamlin, A. F. Robertson and A. L. Tynes, all of Staunton.

Dr. H. M. Wallace, of Greenville, is president and Dr. C. C. Jones, of Staunton, secretary.

Dr. and Mrs. Julian F. Ward,

Winchester, Va., recently enjoyed a short visit to Baltimore.

Dr. Theodore Hough,

Dean of the Medical Department of the University of Virginia, was unanimously elected president of the Association of American Medical Colleges at its annual meeting recently held in Chicago. This organization is composed of representatives of about sixty Class A medical colleges of America.

Wanted.

Assistant Physicians (mental disease) and Assistant Physicians (tuberculosis) in the Maryland State Hospitals. Apply to State Employment Commission, 22 Light Street, Baltimore, for full information and application blanks.—(Adv.)

Wanted.

Desiring to retire from practice (Eye, Ear, Nose and Throat), would be glad to get into communication with good, energetic, young man who desires to locate in one of the best towns of the Valley of Virginia. Little or no capital required. Address communications to "R," care this journal.

For Sale.

One McIntosh Universalmode 110 volts, 60 cycles, A. C., 1915 model, including lot of accessories. A bargain for the right man. American Trust Company, Admr., 1005 East Main Street, Richmond, Va.

The Truth About Medicine

During February the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Armour & Co.:
Corpus Luteum Tablets, 5 grains.

David B. Levy:
DuBois Iodoleine, Injectable, Ampoules, 2 cc.

E. R. Squibb & Sons:
Fat-Free Tincture Digitalis.

Book Announcements

Transactions Of The American Pediatric Society. Thirty-second session held at Highland Park, Ill., May 31—June 2, 1920. Edited by OSCAR M. SCHLOSS, M. D., Vol. XXXII.

Transactions Of The College Of Physicians Of Philadelphia. Third Series, Vol. XLI. Philadelphia. Papers read before the College from January to December 1919, inclusive. Edited by H. R. M. LANDIS, M. D.

The Johns Hopkins Hospital Reports. Vol. XX, Fasciculus I, 147 pages and 55 full pages illustrations 1920. Vol. XX, Fasciculus II, 101 pages and 23 full page illustrations, and Vol. XXI, Fasciculus II, 60 pages and 4 illustrations, 1921. Baltimore. The Johns Hopkins Press.

Obituary Record

Dr. Elliott T. Brady

Was found dead in his room on board ship in New York harbor the morning of February 14, 1921. He was in the employ of the United Fruit Company as ship's physician, and in that capacity had made numerous voyages out of New Orleans to various ports in the Gulf and Carribean Sea. He had recently spent a vacation in Roanoke, for a number of years his home, and was apparently in the best of health and spirits, though he mentioned to at least one intimate friend that his heart had been a cause of some anxiety to him. He was contemplating taking up x-ray work again in a hospital in Guatamala, operated by the United Fruit Company.

His boyhood home was in Rockbridge County and there his body was laid to rest. He was for a number of years connected with the staff of the State Hospital at Marion, later in private practice in Abingdon, Va., whence he moved to Roanoke to specialize in x-ray work. At the outbreak of the World War he made every effort to serve his country as an army or navy medical officer, but due to his lameness was not accepted. He, however, was appointed roentgenologist to the Allegheny General Hospital in Pittsburgh, Penn., thereby releasing for field service the officer previously serving there. After the signing of the armistice, he entered the service of the United Fruit Company as mentioned.

Dr. Brady was elected president of the Medical Society of Virginia, October 7, 1909, and served the ensuing term. He was for some years also a member of the State Examining Board, and served on many important committees.

His widow and two children survive him.

A committee, composed of Drs. Hugh Trout,

E. P. Tompkins and G. M. Maxwell, was appointed to represent the Roanoke Academy of Medicine at Dr. Brady's funeral. E. P. T.

The following piece was prepared and read before the Roanoke Academy of Medicine by its president, Dr. G. M. Maxwell:

IN MEMORY OF DR. BRADY.

They had dug his grave on the brow of a hill, overlooking a wide expanse of as fair a country as the sun shines upon, and nestling in the midst of it was the boyhood home of this travel-worn and life-weary man of some three score summers.

Surrounded by a small band of his boyhood friends and relatives we laid him quietly to rest in "God's Acre," there to await such a resurrection as the will of an Infinite God may direct.

Hovering about our small band on the marble-studded hill, my mind could picture a larger, Glorified Band of friends and playmates, who, long since having passed into that "Undiscovered Country," love still to linger around the old scenes and places, and were met there to welcome another of the old comrades into their number, and to keep silent tryst with this sorrowing band of friends.

Dr. E. T. Brady was no ordinary man and bore about in his body no ordinary mind. He had drunk deep at the spring of knowledge. The lore of the ancient sages was as familiar to him as the scenes of his boyhood home. The creed of Hippocrates was his code of ethics. Somewhat skeptical as to the creeds and dogmas of the modern church, he was a firm defender of the faith of his fathers, and his name is written high on the list of those who love their fellowmen.

We who have known him best, miss him most, but to all of us his memory will ever bring pleasant recollections of the old days when he was one in our midst.

An old friend of yours and an old friend of mine
Has folded his tent, when the weather was fine,
And leaving us here in our own little glade
Has ambled away to the Realms of Shade,
Where the butterflies flit and the wood-warblers sing
O'er his head as he rests by a soft flowing spring;
When we know he is happy there, why should we pine
For this old friend of yours and this old friend of mine?
Let's laugh and be jolly then, Old Friend of Mine,
For one of these mornings we'll pass down the line,
Our tents folded softly and laid on our pack,
Our faces set homeward, we'll never look back,
But on to that Country we'll hasten away
Where wild woodland beckons and old comrades stray;
And there we shall meet him, Oh, won't it be fine!
This old friend of yours and this old friend of mine.

RESOLUTIONS ON DEATH OF DR. BRADY.

"The Roanoke Academy of Medicine learns with sincerest grief of the death of Dr. E. T. Brady, until recently a beloved member of this organization—a sorrow in which each member bears a personal part. No one member of this society has ever been held in more affectionate regard than was Dr. Brady. His trenchant wit, his skill in repartee and the brilliancy of his intellectual attainments challenged the admiration of all with whom he came in contact, while the warmth of his love for his fellowman, and especially his colleagues in the medical profession, and his unswerving loyalty to his large circle of friends and to his country endeared him in utmost measure to those who were proud to call themselves his friends.

"This society felt it had sustained a great loss when Dr. Brady removed from the city some three years ago, a sense of loss made permanent on his death.

"The sincerest sympathy of this Academy goes out to the family who are thus bereft."

E. P. TOMPKINS,
RALPH W. BROWN,
HUGH H. TROUT,
Committee.

Dr. Herbert B. Lush,

Of Winterpock, Va., died March 6, at a Richmond hospital, after a brief illness with pneumonia. He was about fifty-four years of age and a graduate of the Medical College of Virginia in 1896. He had practiced for many years in Chesterfield County and was very popular in that section. He is survived by his widow and five children, a sister and brother.

Dr. Joseph Taber Johnson,

A prominent physician of Washington, D. C., died at his home at Cherrydale, Va., just outside of Washington, March 12, at the age of 75 years. He was a graduate in medicine from Georgetown University School of Medicine, Washington, in 1865, and from Bellevue Hospital Medical College, New York, in 1867. He was emeritus professor of gynecology and abdominal surgery and president of the faculty of the Georgetown University School of Medicine. He was at one time also connected with Howard University, also of Washington. Dr. Johnson was a member of several societies relating to his special work, and also of the Medical Society of the District of Columbia, of which he was president in 1887. He was at one time a member of the Medical Society of Virginia.